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Details on pages 66 and 67.

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NOVEMBER/DECEMBER 1984 / \$2.50

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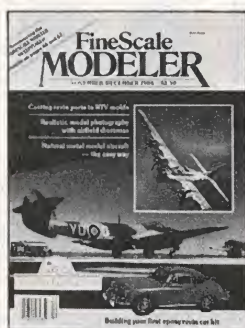
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ON THE COVER

Photographer and modeler Vic Roseman calls his diorama photo of the Gloster Meteor "British Secret Weapon." Vic doesn't keep his photo techniques a secret, though, and you'll find them explained in detail beginning on page 54. David Jones tells all, too, about plating that B-17 with a micro-thin skin of real aluminum (page 38), and Wayne Moyer returns to FSM's pages to build a 1/43 scale Porsche 356B from an epoxy resin kit (page 42). Finally, don't miss the kickoff of FSM's exciting Sweepstakes on pages 66 and 67! Photos by Vic Roseman, Gerry Humbert, and Wayne Moyer.



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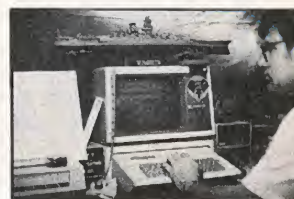
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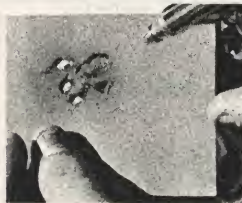
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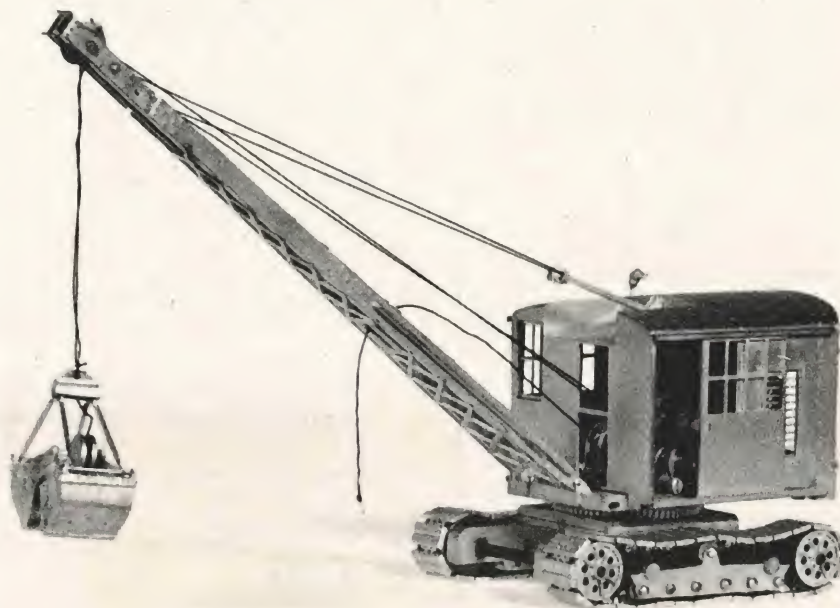
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FSM UPDATE

FSM invites manufacturers and publishers to submit news releases, photos, product samples, and new catalogs. A description of our new-product announcement and review policies is available from FSM Update, FINESCALE MODELER, 1027 North Seventh Street, Milwaukee, WI 53233.

FSM Sweepstakes. If you enter the FSM Sweepstakes, you'll have a chance to win a complete workshop, including a workbench, hand tools, lathe, two airbrushes, air compressor, paints, drill set, and more. The grand prize drawing will be held in March 1985. Drawings will be held in January and March to award airbrushing outfits, sets of ten Kalmbach scale modeling books, and five-year subscriptions to FSM. See pages 66-67 for details.

Kit releases. Fujimi Mokei Co., Ltd., 21-1 Toro, 4-Chome, Shizuoka City, Japan, has released a 1/72 Japanese Navy B7A1 Shooting Star (Grace).

A 1/24 Mustang Boss 302 hood conversion kit is available for \$4.00 postpaid from William Hitchen, 6163 North Ozanam Avenue, Chicago, IL 60631. Hitchen also sells a solid hood insert for \$1.20 postpaid.

New from KPL Models, 703 Cannon Road, Silver Spring, MD 20904, are 1/72 T.V. and Fokker T.IX Dutch World War Two bomber kits. Each kit sells for \$7.95; add \$1.50 postage within the U.S. Outside the U.S., inquire about shipping charges before ordering.

Leisurewire Ltd., P.O. Box 12, Watlington, Oxfordshire OX9 5EN, England, has introduced a structure modeling kit, the Plawco Construction System. Leisurewire says this kit will allow modelers to simulate almost any type of structure. Each kit comes with a 24-page handbook, 100 PVC-covered steel rods 20" long and .16" in diameter, 500 connectors and adapters, and a special adhesive; it sells for approximately \$70.00.

Two 1/12 Tamiya motorcycles now avail-

able from Model Rectifier Corporation, 2500 Woodbridge Avenue, P.O. Box 267, Edison, NJ 08817, are No. 1431, Honda VF750F, and 1432, Honda NS500 Grand Prix Racer.

Monogram Models, Inc., 8601 Waukegan Road, Morton Grove, IL 60053-2295, has added the following kits to its line: No. 6016, Masters of the Universe Roton assault vehicle; 6034, 1/48 ground attack combat diorama with Sherman tank and Fw 190; 6035, 1/48 tank hunter combat diorama with Panther tank and P-51B Mustang;



6036, 1/32 Blue Thunder helicopter; 6064, 1/48 Heritage Edition de Havilland Mosquito; and 6065, 1/72 Heritage Edition HU-16B Albatross.

Recent Robotech Defenders kits from Revell, Inc., 4233 Glencoe Avenue, Venice, CA 90291, are No. 1148, Aqualo; 1149, Ziyon; 1150, Thoren; 1151, Zoltek; 1152, Condar; 1153, Talos; and 1154, Gartan. Numbers 1148-1152 are 1/72; 1153 and 1154 are 1/48. Revell also has released four Robotech



Changers kits: No. 1400, 1/38 Nebo; 1401, 1/72 Orbot; 1402, 1/72 Vexar; and 1403, 1/72 Axoid.

Twentieth Century Imports, 4732 East Pearl, P.O. Drawer 3348, Boulder, CO 80303, has announced the availability of the following Japanese science-fiction kits: five 1/48 kits from Aoshima; six kits from Imai; three 1/100 metalized kits from Arai; 23 kits

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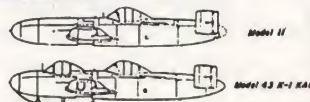
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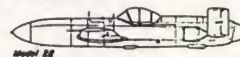
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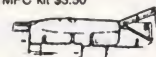
VJ-1 OHKA Model 11/43;
1:32 scale \$10.00



VJ-2 OHKA Model 22;
1:32 scale \$7.50



CG-1 FW 190 13mm cowling;
for 1:24 MPC kit \$3.50



CA-1 V-100 turret
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DECALS: Still available;

AD-1 U.S. letters & numbers; \$12.50 / set
AD-2 LUFTWAFFE letters & numbers; 1:32 \$17.50 / set
AD-3 Same as AD-2 only 1:48; \$17.50 / set

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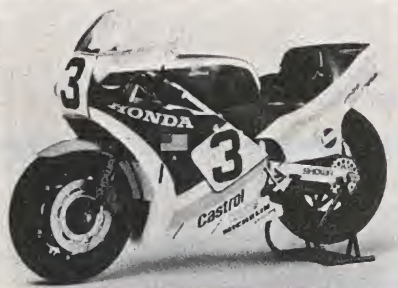
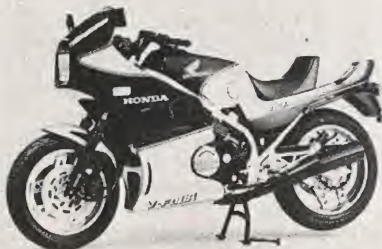


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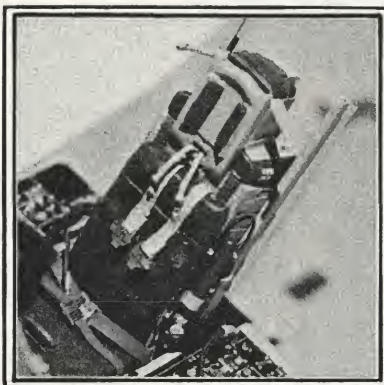
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NEW! From Waldron Model Products. Jet Seat Belt Buckle Set. Consists of three frames of parts. Includes parts for the F-16A, (set includes Firing Control Handle, Harness Release and Seat Adjusting Knob for Aces II). Parts for the F-15 Buckle Set, the F4-Phantoms, F104 Star Fighter, the F5 and the F14. Parts may be applicable to other aircraft. This set should make detailing jet cockpits much easier. Send for prices.



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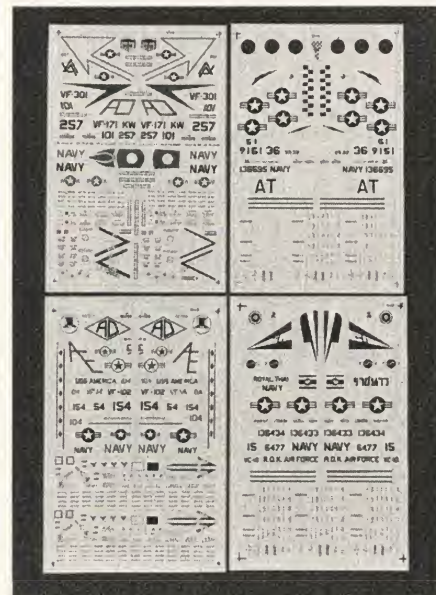
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from Nichimo; three 1/24 kits from Takara; two 1/20 kits from Nitto; and 1/60 Votoms series kits from Union.

Wings 72 & Wings 48, Inc., 3349 Wildridge Drive NE, Grand Rapids, MI 49505, has released vacuum-formed kit No. VW488, a 1/48 Chance Vought O2U-1 Corsair, \$16.95. Add 15 percent for postage and handling in the U. S. Outside the U. S., add 20 percent for surface mail or 50 percent for airmail; payment must be in U. S. funds.

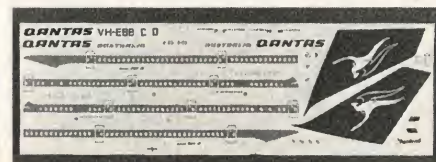
Decals. Detail & Scale, Inc., announces the release of decals designed to fit the Monogram 1/48 Convair F-106A Delta Dart. Sheet No. 0448 features markings for the 48th Fighter Interceptor Squadron (FIS) in both 1972 and 1976 liveries. Sheet 0548 has markings for 94th FIS, 460th FIS, and the Air Defense Weapons Center. The decal sheets are available for \$3.50 each plus 35 cents postage from Aeolus Publishing Limited, P. O. Box 2643, Vista, CA 92083.



The latest Microscale Decals released by Krasel Industries, Inc., 919 Sunset Drive, Costa Mesa, CA 92627, include 1/72 markings for low-visibility Phantom IIs: Sheet No. 72-440 includes an F-4N from VF-171, an F-4S from VF-301 in the Heater-Ferris camouflage, and an F-4S from VF-302; sheet 72-441 has an F-4N from VF-154, an F-4S from VF-103, and an F-4S from VF-171. Korean, Thai, and U. S. Navy S2F Trackers are featured on sheet 72-442, while sheet 72-443 has one Japanese and two U. S. Navy Trackers.

In 1/48, Microscale offers low-visibility F-14 Tomcats of VF-14 and VF-102 on sheet No. 48-215, VF-74 and VF-124 on sheet 48-216, and VF-211 and VF-142 on sheet 48-217. Sheet 48-218 has low-visibility Phantom IIs from VF-171 and VF-301.

Roodecals of Australia has released decal sheets showing present markings of a Qan-



tas 747. The sheets are available in three scales from Croydon Impex, 6 Waid Terrace, Farm Road, Anstruther, Fife KY10 3EZ, Scotland: 1/200, £2.42; 1/144, £2.75; and 1/125, £2.92. Add 35p per order for surface mail postage. MasterCard is accepted. (Croydon Impex has a special offer for FSM readers. If you order any decals — Roodecalcs, Hobby 2000, or IPMS Belgium — before December 31, 1984, and enclose a copy of this paragraph, your order will be sent airmail for the normal surface mail rate.)

Paints and adhesives. New from Franklin Chemical Industries, Inc., 2020 Bruck Street, Columbus, OH 43207, is Home, Shop & Craft Glue. Franklin says that this is the thickest, fastest-drying glue available for porous and semi-porous materials.

Super Glue Corporation, Hollis, NY 11243, has introduced On-the-Spot Super Syringes. Adhesives available include contact cement, professional wood, quick-setting epoxy, super-strength epoxy, and household cement.

Figures. Artistic Enterprises, 9 Winston Crescent, Whitby, ON, Canada LIN 6Y3, produces 54 mm painted foot and mounted



figures. Foot figures sell for \$30.00 each, while mounted figures cost \$60.00. A complete price list is available for free.

Four new figures from Almond Sculptures are available from Historex Agents, 3 Castle Street, Dover, Kent CT16 1QJ, England: No. AS/A6, 90 mm mounted Polish winged hussar, circa 1683, £35.00; No. AS/A7, 90 mm Fusilier Garde Francaises, 1720, £12.10; AS/A8, 90 mm Franche de la Marine, 1750, £12.10; and AS/AF2, the Falconer, 110 mm, £14.95.

New 54 mm Chota Sahib figures available from Historex, £3.30 apiece, are No. BI/21, sergeant, Royal Marines, 1980; BI/22, corporal, RMP Northern Ireland, 1969-84; BC/7, Major Skinner's horse, 1900; and S/5, 17th Lancer officer, 1825. Three new 80 mm figures from Mil-Art, £7.00 apiece, are No. F22, grenadier, 12th SS Panzer Division, Normandy, 1944; F23, officer, Royal Scots Fusiliers, Zulu War, 1879; and F24, officer,

SAS Regiment, northwestern Europe, 1944-45. Sovereign Miniatures has released No. SMF/30, medieval handgunner, £5.75, and SMM/5, mounted Roman catafract, £14.95, both 75 mm.

Model Rectifier Corporation, 2500 Woodbridge Avenue, P. O. Box 267, Edison, NJ 08817, has added No. 3629, German soldiers at rest, to its 1/35 Tamiya military figures series. Also new is 3628, livestock set with ten species of animals.

Quartermaster Corps, P. O. Box 908, Buckingham, PA 18912, has announced the release of five 1/32 toy soldier sets painted in gloss enamels: World War One, Bremen Infantry Regiment No. 75, \$55.00; WWI, Westpfalen Jager Battalion No. 7, \$55.00; Zulu War, British 24th Infantry Regiment, \$58.00; Sudan Campaign, British 25th Regiment, King's own Scottish Borderers, \$65.00; and Sudan Campaign, British 71st Regiment, Highland Light Infantry, \$65.00. Each set includes six pieces.

There are 12 new releases in the "Custom Characters" line from Rafm Company Inc., 19 Concession Street, Cambridge, ON, Canada N1R 2G6. Items available are No. CC-1, heroic adventurer; CC-2, warrior knight; CC-3, female fighter; CC-4, evil warlord; CC-5, barbarian warrior; CC-6, thief; CC-7, wizard; CC-8, sorceress; CC-9, priest; CC-10, elvish adventurer; CC-11, dwarf; and CC-12, half orc. Each sells for \$2.25.

Ral Partha Enterprises Inc., 5938 Carthage Court, Cincinnati, OH 45212, has released No. 01-501, bronze dragon of Pern, the first in a series of sculpted pieces based on Anne McCaffrey's *Dragonriders of Pern* series of books. It sells for \$30.00 and includes painting instructions. Ral Partha also is producing a series of boxed sets of 25 mm figures to be used with Runequest.

David Reed, 5451 East Creek Road, South Wales, NY 14139, is selling 1/48 and 1/72 Airwaves figures.

Accessories and diorama materials. New from Monogram Models, Inc., 8601 Waukegan Road, Morton Grove, IL 60053-2295, is



the car collector's display case, product No. 6033, molded in black plastic with a clear, removable cover. It is designed for 1/24, 1/25, and 1/32 automobiles and retails for \$12.00.

Poste Militaire has introduced figure bases of white metal and English yew in kit form. The foot base kit sells for £5.18 and the mounted base kit is £8.63. They are available from Historex Agents, 3 Castle Street, Dover, Kent CT16 1QJ, England.

Electronic kits and components for modelers are available from Power Resources, 1004 Madison Avenue, Pittsburgh, PA 15212.

S. A. E. Displays, 3804 Priest Lake Drive, Nashville, TN 37217, sells model display

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Tools. F & H Machinery Co., P. O. Box 48056, Chicago, IL 60648, is selling the Scangrind 150 wet stone which features a 6" stone. It turns at 200 rpm.

Jarmac, Inc., P. O. Box 2785, Springfield, IL 62708, has introduced a deluxe 4" benchtop table saw, model No. 1010SG. This metal saw is designed to cut small wood, plastic, Styrofoam, and nonferrous metal parts, and comes with a 1/15 horsepower motor, miter guide, rip fence, and fine-tooth saw blade with 200 teeth. The table top is 9" x 12". Blade height can be adjusted to 5/8" and tilts to any angle up to 45°. The benchtop table saw sells for \$136.50 plus \$4.50 shipping.

New from Loew-Cornell, Inc., 563 Chestnut Avenue, Teaneck, NJ 07666-2490, is the Mixtique line of paintbrushes. These brushes are a mixture of pure Golden Taklon synthetic fibers and natural hairs; two lengths are available.

Merit Abrasive Products, Inc., 201 West Manville, P. O. Box 5447, Compton, CA 90224, has announced the release of the new lightweight Sand-O-Flex, a brush-backed sander, \$15.95. It has a high-impact plastic body and uses cloth-backed aluminum oxide abrasive.

Catalogs. A free 56-page catalog of books and videotapes is available from Aviation Book Company, 1640 Victory Boulevard, Glendale, CA 91201. Outside the U. S., send \$2.00 for postage.

Send \$2.00 to Arthur S. Green, 485 South Robertson Boulevard, Beverly Hills, CA 90211, for his Metals for Casting Models catalog.

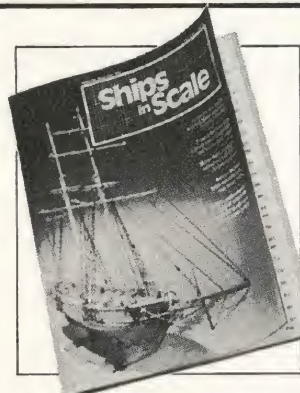
Jane's Publishing, Inc., 286 Congress Street, Boston, MA 02210, has released a 26-page fall/winter 1984 book catalog.

For a catalog listing New Era Metal Models' painted model soldiers, unpainted castings, and arm band decals and other accessories, send \$2.00 to 1612 NW 55th Place, Gainesville, FL 32606.

NorthWest Short Line, Box 423, Seattle, WA 98111, has released its 1984 catalog. The price is \$3.00.

J. Peddinghaus, Beethovenstrasse 20, 5870 Hemer, West Germany, produces a line of 1/32 figures. A catalog is available for DM10 (Deutsche Marks).

Smithsonian Institution Press, P. O. Box 1579, Washington, DC 20013, has published a free 64-page fall/winter 1984 book catalog.


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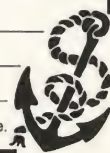
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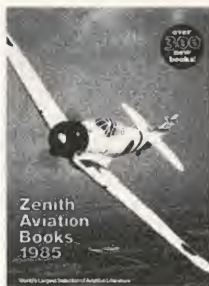
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The 1985 catalog from Zenith Aviation Books, P. O. Box 2, Osceola, WI 54020, is now available. This free catalog lists more than 1,500 titles.

Miscellaneous. An 18" x 30" print of the P-51B Mustang "Ding Hao" is available for \$65.00 plus \$5.00 for shipping and handling from Aero Graphics, P. O. Box 28583, Atlanta, GA 30328. The print is signed by the artist, John Ficklen, and the airplane's pilot, Jim Howard.

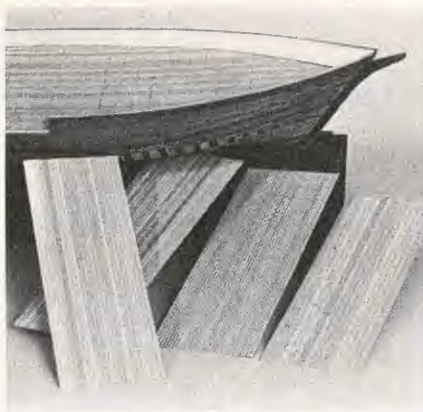
The Armchair Sailor Bookstore, Lee's Wharf, Newport, RI 02840, has published a 24-page supplement to its *Descriptive Bibliography of Current Marine Titles*. It's priced at \$2.00, or \$5.00 for overseas air-mail.

New from Densa Fine Arts, 536 Morse Avenue, Schaumburg, IL 60193-4563, are 16" x 20" prints of the M60A1 and M1 Abrams tanks. Each print is signed by artist Robert Coffman.

Esselte Penda-flex Corporation, Clinton Road, Garden City, NY 11530, has added the Dymo DeLuxe I. D. Labelmaker to its line. Suggested list price is \$6.60; Dymo tape rolls sell for \$1.89 each.

A booklet entitled *Drawings for Photo-Etching* is available for \$4.00 (refundable with a \$30.00 purchase) from Fotocut, Box 120, Erieville, NY 13061. It includes a sample drawing, negative, and etching.

IPMS Tracks and Props Chapter, 507 Donovan Avenue, Bellingham, WA 98225, is selling a pamphlet which lists WWII aircraft colors matched to FS 595a. The price is \$2.00.



Northeastern Scale Models, Inc., P. O. Box 425, Methuen, MA 01844, has introduced a line of miniature scale ship decking in hardwood tones with fine black lines representing caulking between the boards. The .050"-thick laminated sheets measure 3" wide by 22" long; spacing is offered in 1/16", 1/32", 1/8", and 3/16".

Subscriptions to *Koku-Fan* (12 issues, \$75.00), *Koku-Fan Illustrated* (6 issues, \$90.00), *Famous Airplanes of the World* (6 issues, \$25.00), and *Combat* (\$12 issues, \$75.00) may be purchased from Photo Press International, Ltd., P. O. Box 2477, Alexandria, VA 22301.

The 1985 aviation art appointment calendar from Squadron/Signal Publications, 1115 Crowley Drive, Carrollton, TX 75011-5010, sells for \$5.95.

Industry news. Twentieth Century Imports, 4732 East Pearl, P. O. Drawer 3348, Boulder, CO 80303, has announced that it has been hired by the Testor Corporation, 620 Buckbee Street, Rockford, IL 61108, as a consultant on Testor's new line of Japanese science-fiction model kits. Testor already has begun marketing 13 kits from the Gunze Sangyo line.

Coming events. The North Eastern Model Car Meet will be held October 7 at the VFW Hall, 513 Veterans Place, Hasbrouck

Heights, New Jersey. Admission is \$2.50 for adults and \$1.00 for children under 12.

The Delaware Valley Scale Modelers will host the IPMS Region II convention October 12-14 at Halloran Plaza, Pennsauken, New Jersey. For additional information, write to Paul L. Viens, 217 Barnsbury Road, Langhorne, PA 19047.

Modelfest '84, a scale model contest and exhibition sponsored by the Austin Scale Modelers Society, will be held October 27 in Building 41 of Camp Mabry, West 38th Street and Mo-Pac Expressway, Austin, Texas. Contest entry fees are \$2.00 per model for senior category members and \$1.00 per model for those in the junior category. Admission is free. For more information, call Bob Bethea, (512) 327-4304, or Tom Eisenhour, (512) 442-4800.

The Fifth Annual Northwest Figure Competition and Show, sponsored by the Military Figure Collectors of Oregon, will be held November 3 at the Jackson Armory on the Portland (Oregon) Airbase. Hours are 10 a.m. until 5 p.m. More information is available from Northwest 84, 10608 NE Tillamook Street, Portland, OR 97220.

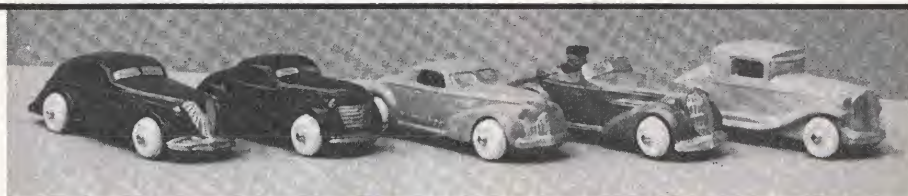
The 22nd annual exhibit sponsored by the National Capital Military Collectors will be held from 10 a.m. until 5 p.m. on November 3 at the Tysons Westpark Hotel, 8401 Westpark Drive, McLean, Virginia. Admission is \$3.00; children under 12 will be admitted for \$1.00. Complete information can be obtained from Dick Perry, 6433 Deepford Street, Springfield, VA 22150.

Modelers in England should note that the 54th Model Engineer Exhibition will be held December 31-January 6 at the Wembley Conference Centre. Models must be entered by October 19. Entry forms and rules of the competitions are available from the Exhibition Manager, Model Engineer Exhibition, Park View House, Park View Road, Berkhamsted, Herts. HP4 3EY, England.

The Indianapolis Adam's Mark Hotel will be the site of the 1985 IPMS national convention, July 18-21. For more information write to IPMS Indianapolis, 1985 National Convention, P. O. Box 88295, Indianapolis, IN 46208. **FSM**

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FSM READER FORUM

Let us know what you think! Comments, suggestions, corrections, and additional information on FSM articles are welcome in this column. Letters submitted for publication should be clearly marked "To the Editor" on both the envelope and the letter, should be typed or hand-printed, and should be no more than 300 words long.

Those vehement reviews. Concerning Loren Perry's comments in the July/August FSM, I do not agree that reviews should be softened up just to ensure we do not offend the manufacturers. If they put out a kit that should have been supplied with a tube of green stuff to fill the gaps, or if the parts are warped, or if someone forgot to close the mold and there is flash all over the place, then the company should hear about it. I'm not sure how Mr. Perry earns his living, but I know that when I make a mistake at my job, I have to bear the heat from irate customers. Errors are not what people pay for, and parts are supposed to fit.

Model manufacturers have an advantage over the modeling public — we have to pay our money first and *then* find out how well a kit fits together. I do not know of a store that will let you cut the parts loose to test fit them; the best you can do is a visual inspection. If something is warped or has poor detail you have the option of not buying the kit, but you really don't know until the cement starts to flow. The model manufacturer has implied by producing the kit that parts fit, and this is what my hard earned money goes for.

Any time this isn't true, I feel ripped off and woe be unto the company that got my bucks. I don't want to hear that their QA system dropped the ball and missed one kit out of 1,000,000. I didn't buy those other kits, I bought the turkey and I'm upset that I can't put the thing together properly. I don't want to wait around for the manufacturer to send me one of those other 999,999 good kits, because I bought the kit so I could assemble it *now*. So I try to weed out the poor kits by reading publications like FSM and IPMS Update.

Just because models were somewhat less refined in 1950 (yes Loren, I remember also), I don't judge today's kits against 30-year-old products.

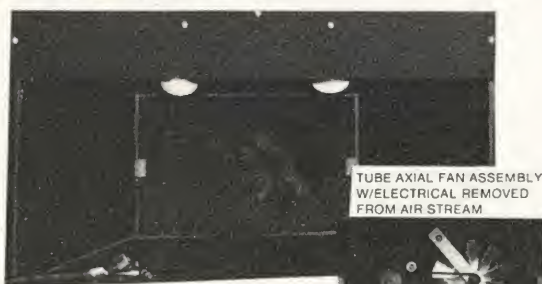
Kenneth Rumbaugh
Burlingame, Calif.

I seldom respond to a letter or an article in a magazine, but I'm compelled to comment on Loren Perry's letter in July/August FSM.

First, I have been building models for over 30 years and quite agree with Mr. Perry's assessment that sometimes your workbench reviews are too vehement. I subscribe to this magazine and others because one never stops learning new and different techniques regarding this hobby, and because I like and enjoy most of it.

I have a Revell B-1B still in the box, so I don't know if mine has warped or poorly fitting parts, but that is not important. I have dealt with warpage, poor fit, inaccuracies, and other defects in kits from all manufacturers before, and will again. Coping with problems of this sort is not only educational,

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it is necessary, and a "shake-the-box" kit teaches no one anything. The thrust of FSM, or any other magazine, should be directed towards younger and less experienced modelers. Articles written by experts, for experts disenfranchise the most important people in our hobby, those just getting started.

When a less-than-perfect kit is reviewed, its defects should be mentioned, but, just as important, tell me and others what you did to correct those defects! We've all been confronted with what appeared to be unrelated, twisted globs of plastic and made a decent model from them—even when the only straight pieces were sprue!

For example, I have read that the Micro-scale system will not work on Monogram's

new decals. Okay, modify the system—do something that *will* work. In building an MPC 1/72 "Dog" Saber I used a hodgepodge of decals, including some from Monogram's B-1B which I assume are of the new type. Instead of using Microscale products, which are not available to me except by mail order, I soaked the decals in water in which a little white glue had been dissolved, then, after the decals had been placed, painted them with denatured alcohol solvent. The application of the alcohol made them lie right down without problems. After drying 24 hours the decals were overpainted with Hyplar gloss varnish. Using this system, I had no problems.

Bruce Lindgren
Beloit, Wis.

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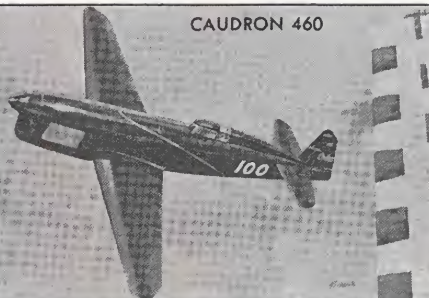
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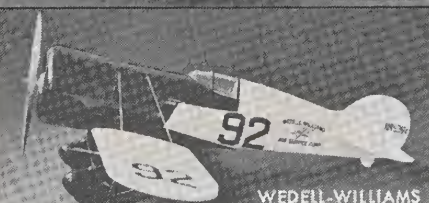


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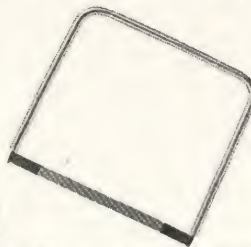
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Figure realism revisited. I would like to comment regarding John Henry Sain's letter in September/October Reader Forum. Since the inception of collector or "connoisseur" figures, the trend in painting has been toward the artistic or painterly approach, which boils down to an enhancement of three-dimensional form through the use of highlight and shadow. This technique gives the figure a vitality (albeit an artificial one) that is lacking in a flatly painted piece.

Most of us have had the experience of seeing a figure which seems to "leap out" at us from among a group of other models — you can be several feet away and the boldness of its form practically compels you to take a closer look. It is this "gotcha" factor that the modelers Mr. Sain calls "they" are after.

It is interesting that Mr. Sain questions the validity of this technique in respect to armor models. Shep Paine began toying with this idea many years ago, and Francois Verlinden has based his considerable reputation on his ability to translate this painting style to all aspects of diorama building. Verlinden's influence has created a popular fashion among armor modelers, and it is one I subscribe to for many years in my own work.

However, not long ago I began to ask similar questions in regard to realism. This kind of painting can make an eye-catching model, but too much emphasis on it can lead to an artificial or antiseptic look. The surface effects of dirt and grime begin to get lost in the scramble to achieve a three-dimensional illusion. The answer to this problem can be illustrated by the analogy of a painter faced with the problem of rendering a giraffe. Does he concentrate on getting the surface skin pattern (read "surface weathering effects") or the basic form (read "highlight and shadow") of the animal?

The answer, of course, is that he does both. Anybody who goes to a model contest soon realizes that the lighting of your model is beyond your control. However, with a bit of thought, "light" can be painted into your models without sacrificing realism.

I realize this letter is longer than your requirements, but Mr. Sain's letter really struck a chord in me. This is a problem I had been wrestling with for some time, and it took a few more words to get my point across.

*Mike Good
San Diego, Calif.*

I concur with John Henry Sain's "minority opinion on figure realism." The colors on figures seem far too exaggerated. Historical research tells us that neither the chemistry nor the technology existed to produce massive amounts of cloth in consistent colors for an army's needs. The best and brightest cloth and colors were purchased by the rich, the second best and the dull colors went to the middle class, the poor and the military received what was left. Personal hygiene was almost nonexistent — and as any veteran will attest, when out in the field you get filthy.

*James W. Birchfield
Camp Hill, Ala.*

Improvements for FSM. I have been a reader of FSM since its first issue, and find it among the best in its field. This said, some improvements could be made.

I'm one of those "average" modelers who make up the vast majority of your magazine's readers. I build models of many different subjects — AFVs, ships, aircraft (both civil and military), motorcycles, and "Big Rigs," and in scales from 1/720 to 1/9. My talents are average, and I read your magazine to improve my techniques. I am not a superdetailer or conversion expert. Most of my attempts in the fields of detailing or conversion consist of relatively simple exercises to improve on a basic kit. The superdetailers and converters write your articles. They rarely read them, or so I believe.

This said, I'll dissect your typical FSM. First the kit reviews: To me this is one of the most important sections of any modeling magazine. Most kits are purchased with the intention of building a realistic scale replica. Most modelers build the kit "stock," and most of those who don't content themselves with adding small details to make up for deficiencies in the kit. A good kit review should therefore consist of a brief description of the subject of the kit and a good account of the accuracy of the moldings, de-

scribing the pros and cons of the various parts. Because few modelers have the data available or the experience to critique a kit absolutely objectively, pointing out its strong points and its weak points, it's more helpful in a review to compare the kit to similar ones by other firms.

Next the construction of the kit should be carefully described. Most important, problems in construction and painting must be pointed out, and ways of avoiding these given. Ways of improving imperfect aspects of the kit should be mentioned so the finished product can be as accurate as possible. Large models such as Revell's 1/32 F-15E (FSM Fall 1983) or ESCI's 1/9 Kettenrad cannot be adequately covered in small reviews, but instead should have feature-length articles written on them, providing a detailed kit review as well as in-depth details on the various painting and decaling schemes.

FSM Book Briefs falls down badly because of its attempt to review too many books in each issue. Rather than reviewing 14 titles (FSM Fall '83) or 24 (Jan/Feb '84),

surely it would be better to confine oneself to reviewing far fewer titles but in greater detail. (If a publisher wants his products publicized, let him take out an advertisement.) Books after all have become very expensive, even softbound editions, and one has to be very particular when considering additions to one's library. A good review would examine the contents of the title, describing what the book covers, how well it covers it, and the deficiencies of the publication. An important question to be answered in every book review is "does this title represent value for money compared with similar titles on the market?"

Finally, feature articles. Overall FSM has done a fairly proficient job here, with a good mixture of conversion and how-to-do-it articles. Such articles should, I feel, be moderately yet simply detailed in text, and most importantly the steps described in the text must be supplemented by good, accurate diagrams, and photographs.

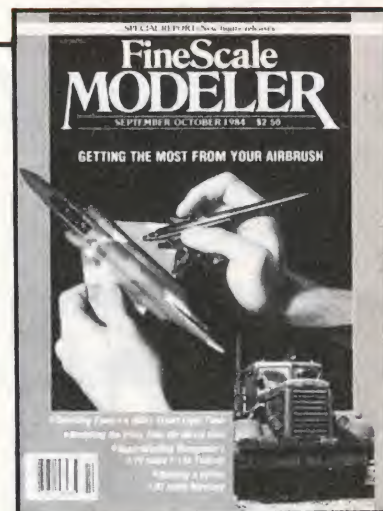
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Kit: No. A601, F-16 Cockpit

Scale: 1/12

Manufacturer: ESCI, Italy, distributed by International Hobby Corp., 350 East Tioga St., Philadelphia, PA 19134

Price: \$14.98.

FRUSTRATED FIGHTER JOCKS like me occasionally look at our models and dream of sitting in the cockpit of a full-size jet fighter, revving up that powerful turbine, giving a thumbs up to the crew chief, taxiing out to the runway, and punching a hole in the clouds with a max-performance takeoff. Well, most of us won't ever get that chance, but now we can dream in a bigger scale. ESCI's first cockpit (an F-104 cockpit is next) contains 113 parts molded in light gray and tinted clear styrene. Also included are a black plastic display stand and adhesive-backed fabric seat belts.

The instructions label the parts with numbers and a letter code indicates the colors that should be applied. They also show diagrams of the finished panels and consoles, calling out (in English) the function of most dials and panel sections. The well-printed decals include main instrument faces, display screens, warning placards, and markings for the pilot's helmet. To make them easier to locate, the decals are arranged in assembly groups on the sheet (seat, main panel, left console, and so forth).



All photos, FINESCALE MODELER: A. L. Schmidt or Paul A. Erier unless otherwise credited.

The kit contains a highly detailed ACES II ejection seat, instrument panel, consoles, cockpit floor including rudder pedals, head-up display, side stick and throttle lever, and pilot's helmet with oxygen mask. The tinted clear parts include display screen lenses, head-up display lens, angled gunsight glass, and helmet visor.

There were no major assembly problems, but the seat back cushion (part No. 13) doesn't fit against the seat back. Although the real seat back cushion is flexible, the plastic part is not, and it awkwardly stands away from the seat at its top. Perhaps warming the cushion in hot water and bending it into shape would be the solution here.

The seat belts are printed on an adhesive-backed fabric, but I thought the brown was too bright; I applied a thin coat of Tamiya XF-59 Desert Yellow to tone them down. The instructions clearly show how the belts are laced through the buckles and attached to the cushions. The stiff fabric made it necessary to super glue the finished belt assem-

blies to the cushions to keep them from floating in midair.

Decal 3H (oxygen regulator dial) is printed in black and goes on a black panel on the right console, making it invisible. Otherwise the instruments, knobs, switches, and levers are accurately reproduced compared with interior photos in Bert Kinzey's *F-16 in Detail and Scale*. There could have been more markings, especially for the ejection handle, stores release button, and other emergency systems. The finished model is 6" long, 4" wide, and 4" high.

I spent 30 hours on my model. Although assembly was simple, beginning modelers may have trouble handling the small knobs (the smallest are 1.5 mm in diameter) which would be lost forever if dropped on a shag carpet. The complex painting of the molded-in details is the biggest chore, but experienced modelers with steady hands should find this kit an enjoyable change of pace. Now, where's the rest of the airplane?

Paul Boyer

Kit: B. A. C./Martin B-57 Canberra

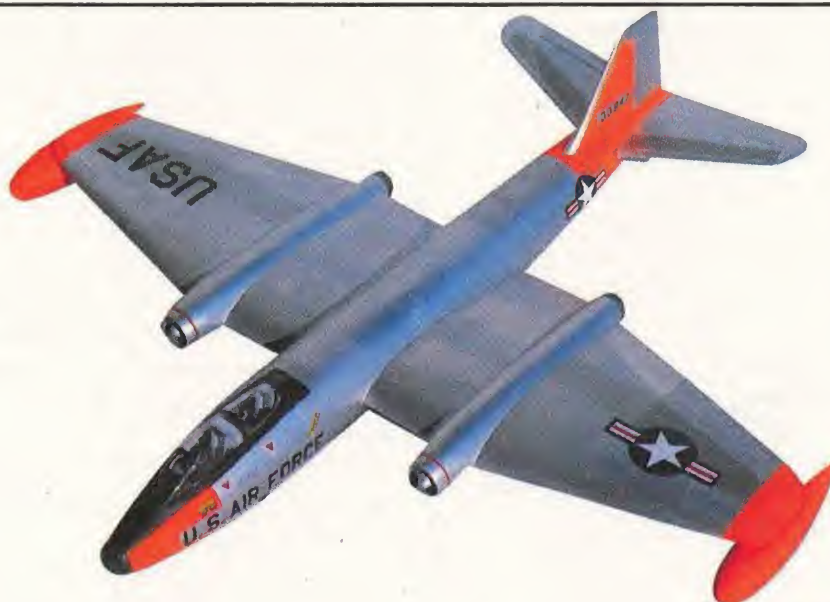
Scale: 1/48

Manufacturer: Falcon, New Zealand, distributed by War Eagle Inc., P. O. Box 255, New Baltimore, MI 48047

Price: \$24.95.

THE B-57 CANBERRA was a rarity, a foreign-designed aircraft picked by the U. S. over American designs in the 1950s, a period of rapid design development. Martin acquired a license to produce the Canberra, first in a version nearly identical to the British B.2 (B-57A), and then the tandem-seat B-57B. Other minor versions followed and the Canberra was the first jet aircraft to be based in Vietnam.

Falcon's kit contains 46 pieces vacuum-formed in .050" white styrene with clear canopies. Landing gear wheels are included but there are no struts. The kit gives optional B-57A "fishbowl" and B-57B tandem canopies, bombardier's clear nose, and optional interiors. War Eagle (Falcon's U. S. distributor) has announced plans to offer



D. H. Minton

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landing gear struts and three types of ejection seats in cast metal. There were no decals provided in the kit, but War Eagle offers a decal package containing markings for six U. S. A. F. machines for \$4.50 postage paid.

The parts are cleanly molded, but there is a minimum of raised panel detail. The clear parts are well molded with little distortion. Although the instructions include an assembly sequence, side and three-view drawings, and parts diagram, they don't have diagrams of the landing gear struts or interior details.

The fit was good except for the front engine nacelles and exhaust cones. These had to be sanded so that their cross section matched the main nacelles molded on the wing halves. The horizontal stabilizers had two joint lines; the outboard line matched best with the fuselage.

I wish the fuselage halves were molded separately on a thicker sheet of plastic; the pieces are large and a bit flimsy. Since there were no details provided for the engine intakes, I scored discs of styrene to represent the engine fronts and made the characteristic starter fairings by sanding down small bombs from my spares box.

I painted the model with Liqu-a-plate and used A. I. R. decals for most of the markings. The finished model scaled closely to the dimensions in *Jane's All the World's Aircraft, 1960/1961*, but it looks too heavy; the airfoil appears too thick and the tip tanks are oversize. It's a big model, measuring 16 1/4" long and 16 3/8" in span. It took 40 hours to complete, twice the time I had expected, but I spent some time detailing the interior and painting. I wouldn't recommend this kit to beginners, but experienced builders will enjoy the challenge. *D. H. Minton*



Kit: No. F310, Lavochkin Lagg-3

Scale: 1/72

Manufacturer: Red Star Model Kits, distributed by CMS Marketing International, 42 Anerley Hill, London SE19, England

Price: \$5.98.

MODELS OF RUSSIAN aircraft come few and far between, so I was glad to see the new Red Star kits of the Lagg-3, MiG-3, Yak-3, and Anatra. These are some of the last molds Frog made before it went under. The molds first went to Novo, the Russian-owned concern that purchased many of the Frog molds, and ended up back in England where the Red Star kits are now being produced.

The Lagg-3 kit is typical of Frog's last releases; what little detail is included is nicely done. The kit's 29 parts have fine raised panel lines and recessed control hinge lines. Clear parts (canopy and landing light) are thick and a bit too large to fit well. The nose gun breach blisters are missing but clearly visible in photos, and the gun barrels were

not cleanly molded. The well-printed decals include markings for two aircraft. There are no construction drawings, but a top view and two side views are included on the instruction sheet. Although the kit is simple and the instructions are clearly written, I would have liked construction diagrams and information about the aircraft.

The kit went together nicely with little filling required. There was a little overlap at the wing leading edge and the horizontal stabilizers were thicker than the stub roots on the fuselage. The propeller spinner had sinkholes that I found difficult to correct, so I substituted Heller's P-39 prop.

There appears to be an outline problem to the wing planform according to the drawings in *Air International*, Vol. 20, No. 1; there should be more sweep back to the leading edges. Otherwise, the model looks good. I took eight hours to complete the model. It can easily be handled by beginners, and it's a welcome addition to World War Two aircraft collections.

Al Jones

Kit: No. WP-108K, 1984 Corvette

Scale: 1/43

Manufacturer: Western Models, distributed by Model Car Masterpieces, 1525 W. MacArthur Blvd., Costa Mesa, CA 92626

Price: \$34.95.

THE LATEST CORVETTE has now appeared in a cast-metal kit. This 29-piece kit also has rubber tires, a tinted vacuum-

formed plastic "glass," and photoetched details. The body is split into upper and lower halves along the beltline, making it possible to produce accurate contours.

Detailing of the exterior is good, and includes left and right hand wheel covers. The interior detailing is minimal; no seat belts or door panel detail are given, but there is a decal representing the digital instrument panel. The tinted glass fits perfectly and



Wayne E. Moyer

helps hide some of the interior's shortcomings.

The simple instruction sheet shows an exploded view of the kit, but doesn't say that the interior should be attached to the top half of the body. The chassis is attached to the lower body half with screws. The parts fit well, but the upper body half was about 1/2 mm wider than the lower half. I simply (and carefully) bent the upper panel till I got a perfect fit. There were no headlight or taillight lenses so I used Floquil Luster Glaze red and amber over Bare-Metal Foil for the taillights and unstirred Tamiya Acrylic gloss white to simulate the headlights.

I found the recess at the beltline that represents the rubber trim strip unsatisfactory, so I carefully pulled the insulation from black microcircuit wire, glued one end into the recess with super glue, stretched it gently, and attached it at the other end. Black nylon fishing line or painted monofilament could also be used.

The kit would make a good first choice for someone who hasn't tackled a metal car kit. It's easy to assemble and it's accurately scaled to dimensions found in *Road & Track* and *Car and Driver*. I spent only six hours on my model, less than usual for me.

Wayne E. Moyer



Kit: No. 006, Yokosuka D4Y2 Type 11 or 12 Judy

Scale: 1/48

Manufacturer: JN, available through Hiko-sen, 68 Tamchi, Taira, Iwaki-Shi, 970, Japan
Price: 3200 Yen plus 1120 Yen for surface shipping (about \$19.00 total).

EPOXY RESIN KITS may be something new to most modelers but they shouldn't be dismissed out of hand. This is the only 1/48 scale Judy available and the molding method produces results comparable to injection-molded styrene kits.

The most striking feature of the kit is the one-piece epoxy molding that includes wings, tail planes, and most of the fuselage with an integral cockpit tub. The engine cowling is a separate piece, and detail pieces such as the landing gear legs, prop, and night fighter gun are molded around brass wire to reinforce them. Small items such as the tail wheel and antennas are molded in white metal and the canopy is vacuum-formed acetate. There are no decals, but a basic instruction sheet (printed in Japanese) is included. Either the type 11 dive bomber or the type 12 night fighter can be built from this kit.

Considering the molding material, the detail in the large pieces is outstanding, with finely recessed panel lines and rivets. There is even grillework inside the ventral intake of the engine cowling. The smaller parts, however, are crude and require cleanup.

The parts fit together well and, since the main assembly consists of only two pieces, there was only one seam to fill and sand. I found that the thin trailing edges tended to chip easily; epoxy resin is not as resilient as styrene. I built my model with cyanoacrylate super glue.

The weakest part of the kit is the interior. Since the canopy is large and clear, I dressed up the interior with scratchbuilt replacements for the crudely molded seats and radio gear.

I spent ten hours on the model, most of it fixing up the interior. The assembly can be handled by any modeler, but extra work on the details calls for more advanced skills. The kit scales accurately with the information in the June 1981 issue of *Koku-Fan*, and it fills a void in 1/48 scale collections of Japanese aircraft.

Randy Fields

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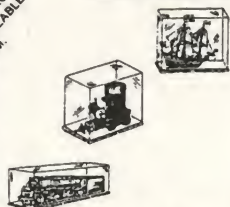
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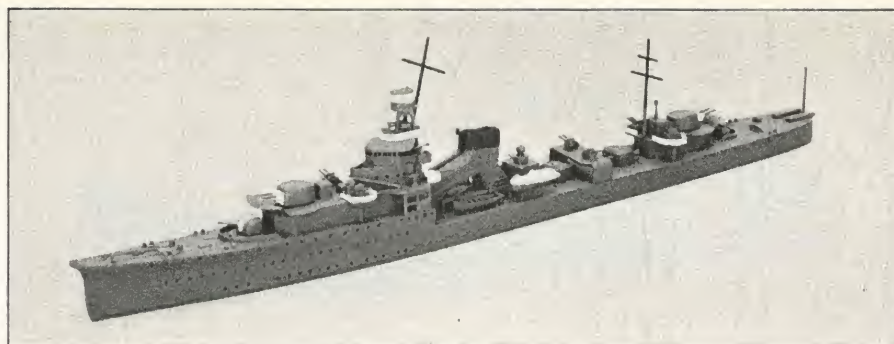
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Kit: No. 7605, *Yubari*

Scale: 1/700

Manufacturer: MRC-Tamiya, Model Rectifier Corporation, Edison, NJ 08817

Price: \$8.98.

THE 2,900-TON LIGHT CRUISER *Yubari* was revolutionary for its day; she had the speed and broadside of a 5,000-ton cruiser, and she was designed with her main guns and torpedo tubes on the center line, influencing later Japanese cruiser construction. She saw service in WWII and was torpedoed and sunk by the U. S. S. *Bluegill* in April 1944.

Like MRC-Tamiya's *Kiso*, this kit includes a wooden display base. The 60 styrene parts have above-average raised detail, but the hull has no portholes molded in and there are no anchors included in the kit. I

drilled out the portholes with a No. 75 drill bit. Other small parts such as the anti-aircraft guns and davits are well molded. The 7-step instruction sheet in my kit is in Japanese, but it's easy to follow.

Strangely, the davits (the launching rails for the lifeboats) are placed outboard of the boats in the kit. This is incorrect for it would be impossible to launch the boats, so I filled the mounting holes and drilled new ones in the correct positions, inboard of the boats.

The fit of the parts was excellent and the dimensions given in *Warships of the Imperial Japanese Navy, 1869-1945*. I took nine hours to build it, but I would recommend replacing the masts and flagstaff with stretched sprue, adding anchors, and rigging the model using the helpful diagram on the instructions.

Dennis Moore



Brian Gibbs

Kit: No. 909002, Avro Vulcan B.2

Scale: 1/72

Manufacturer: Airfix, Palitoy, Baker St., Coalville, Leicestershire, England

Price: \$18.95.

THE MOST SUCCESSFUL of the "V" bombers, the Vulcan has been one of the most wanted kits among British and European modelers. The Vulcan served for years as the mainstay of Britain's nuclear strike force, but the only action it saw was a single-aircraft, conventional strike on the runways of Port Stanley during the Falklands campaign.

Considering its size (18½" long, 16⅞" span), the 108-part kit has good raised detail. The 16-step instructions don't name the parts but they are easy to follow. Unfortunately, the painting guide only lists the names of Airfix's paints, unavailable in the U. S. The decals include markings for three aircraft: a white Blue Steel missile carrier of 617 Squadron, and camou-

flaged machines of 44 and 9 Squadrons.

The basic airframe consists of only ten pieces and it goes together quickly, but I spent a lot of time filling and sanding the long seams on the forward fuselage and wing joints, losing some of the detail in the process. The gap at the tail cone joint is the most difficult to fix. The wing trailing edges were a little thick, but the engine exhaust nozzles can easily be filed thin from the inside. The fairings and fences in step 15 should be added carefully.

I was pleased that Airfix included the Blue Steel standoff missile option. The kit scaled closely with the dimensions in *Scale Aircraft Modelling*, Vol. 4, No. 10, and looks spectacular when built. I used CompuColor Medium Sea Gray and Dark Green for the top camouflage and Testor Model Master Dark Gull Gray for the underside. It took me 18 hours to complete, but this is a big model, so naturally everything takes longer than usual.

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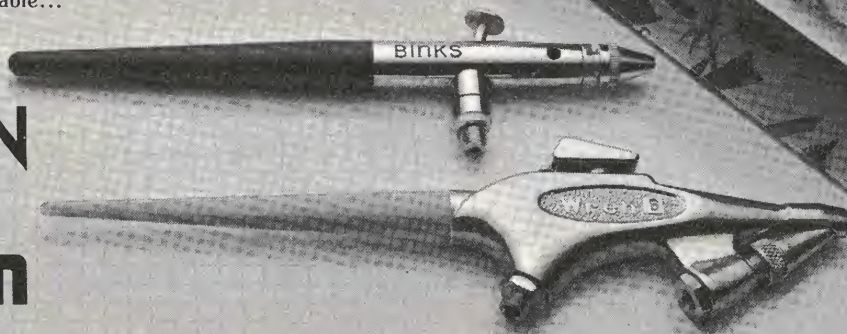
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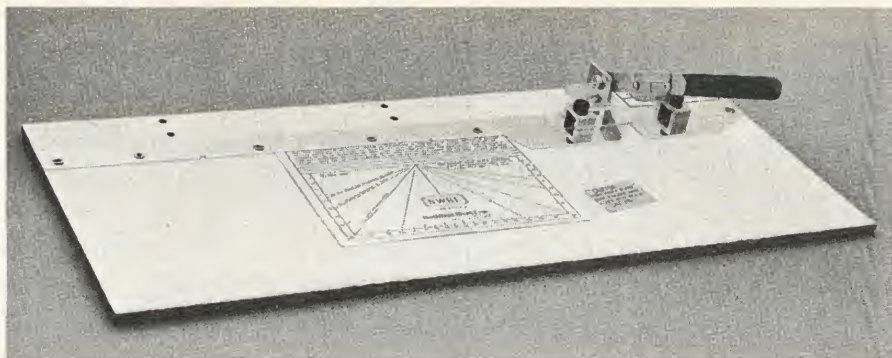
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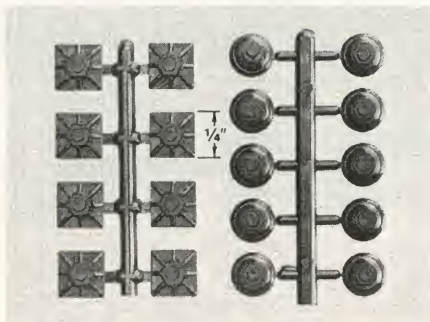
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The Fricko focusing pinhole lens with colens for 35 mm cameras is available from the A. J. Fricko Company, P. O. Box 43276, Cincinnati, OH 45243. The diameter of the pinhole is .018". The attachment replaces the normal lens of the camera. According to Fricko, the pinhole lens with colens provides sharper images, shorter exposure times, and a brighter viewing screen than the firm's regular pinhole lens. Shown is product No. 274-845, Fricko focusing pinhole lens with colens for Nikon 35 mm SLR cameras, \$32.95.



Cutting tool

New from NorthWest Short Line, Box 423, Seattle, WA 98111, is the Chopper III, item No. 59-4, \$24.95. The Chopper III has an 18" base and uses a single-edge razor blade to make square and miter cuts on miniature wood and styrene strips. Three extra razor blades are included.



Large hex nuts and washers

Recently introduced by Grandt Line Products, Inc., 1040B Shary Court, Concord, CA 94518, are No. 3911 (left), .100" hex nuts on .250" square ribbed washers, and No. 3912, .100" hex nuts on .250" round cast-iron washers. The parts are injection-molded in black styrene. There are 24 square ribbed washers per package and 30 round cast-iron washers per package; each package is \$1.50.



Scenery materials

Chooch Enterprises, Inc., P. O. Box 217, Redmond, WA 98052, sells HO (1/87) scale scenery materials. Shown are (clockwise from bottom left) No. 7025, small timber-piled cribbing retaining wall, \$6.50; No. 7038, cut-stone culvert, \$5.00; No. 7006, assorted junk piles, \$6.50; No. 8007, 20 small tree stumps, \$6.50; and No. 7128, automobile junk piles, \$7.99.



Enamel paints

Pactra Industries, 16946 Sherman Way, Suite 300, Van Nuys, CA 91406, has introduced Authentic Scale Model enamel paints to replace its line of Scale Model Flats. Pactra says these enamel paints include more flat colors than the Scale Model Flats paints, as well as a full line of gloss colors. Most of the colors have Federal Standard 595a (FS) numbers. The 3/8-ounce bottle retails for \$1.29, while the 3.03-ounce spray can retails for \$2.29. There are 32 flat and 12 gloss bottled colors available; the spray can line includes 19 flat and 11 gloss colors.



1/43 scale Ferrari

Idea 3 of Italy produces a fully assembled, diecast 1956 Ferrari 410 S. A. in 1/43 scale. This two-tone white and light metallic blue model is a replica of the Ferrari shown by Pininfarina at the Paris Car Show in 1956. It is available for \$20.00 plus \$2.50 for postage from Lilliput Motor Car Co., P. O. Box 156, Clarksburg, NJ 08510.



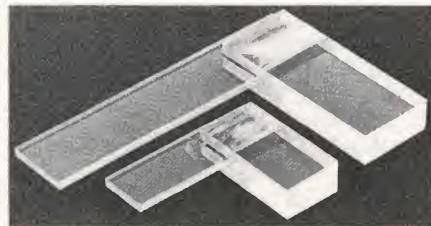
30 mm figures

The Model Shoppe, 323 1/2 Richmond Street, El Segundo, CA 90245, imports white metal figures from Tradition Scandinavia of Sweden. The figures are 30 mm tall excluding headgear, and represent subjects from medieval times to World War Two. Shown from left are George Washington, \$5.08; Joachim Murat in Hussar uniform, \$3.19; Frederick the Great, \$3.19; and World War One German soldier, \$2.38. Send \$1.00 for the 1984 Tradition Scandinavia catalog.



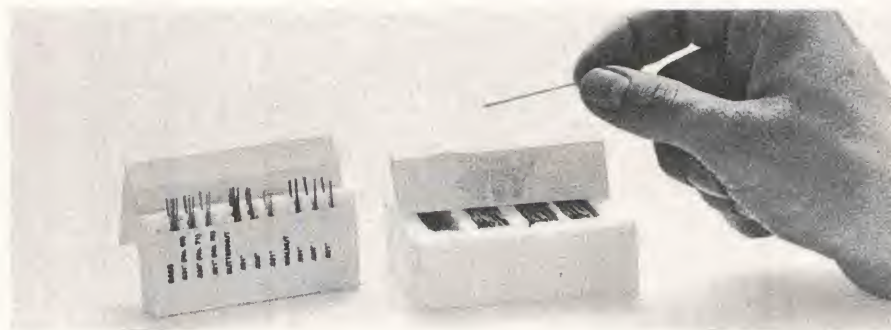
Seat belt buckles

Photoetched, half-hard stainless steel aircraft seat belt buckles are available from Model Technologies, 15561 Product Lane, Unit D, Huntington Beach, CA 92649. Shown are No. MT 0005, 1/48 scale American World War Two buckles with mounting hardware (top), \$3.00, and No. MT 0003, 1/72 scale German WWII buckles with rudder pedals, \$2.50.



Acrylic squares

The Greenhouse Miniature Shop, 6008 Secor Road, Toledo, OH 43613, sells 2" and 4" clear acrylic squares. The 2" square costs \$4.00, while the 4" square costs \$5.00.



Scale treenails

Dowls, P. O. Box 425, Glen Head, NY 11545, is selling treenails for ships in 1/8", 3/16", 1/4", and 3/8" scales. They are designed for drill sizes No. 68 (.031"), No. 71 (.026"), and No. 75 (.021") and are available in basswood, butternut, or walnut. Basswood sells for 50 cents per lineal foot, butternut for 60

cents, and walnut for 80 cents. The minimum order is ten lineal feet. Add \$1.50 for postage and handling in the U. S. Overseas residents should send U. S. funds and add \$3.00 for postage and handling. A sample package (at left in photo) of three woods in three sizes or your choice of woods and sizes is available for \$2.00.

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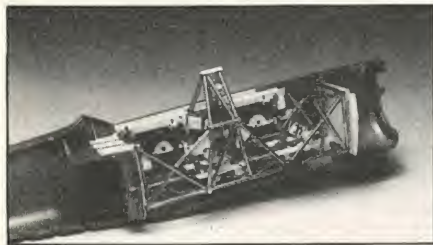
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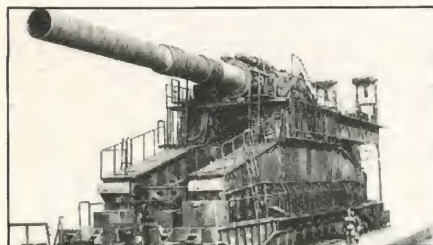
NEXT ISSUE

FEATURES



Superdetailing a 1/48 scale AT-6. Bob Steinbrunn.

FINESCALE MODELER celebrates the start of its third full year of publication with a special salute to an aircraft with considerably more longevity – the North American AT-6, which celebrates its 50th anniversary in 1985. Aviation artist Ken Sommerfield returns to FSM's pages with a research data piece – including a dramatic, full-color painting – on one of the many T-6s flying today in civilian registry, and superdetail artist Bob Steinbrunn adds an article telling how he spent 600 hours improving Monogram's 1/48 scale AT-6!



German railway gun Dora. Lewis Pruneau.

FSM Showcase features a one-of-a-kind model of a one-of-a-kind subject: The enormous German railway gun Dora. Lewis Pruneau's 1/35 scale model of Dora is over 40" long! Rounding out the content you'll find articles on building and detailing a 1/72 scale vacuum-formed submarine kit, and scratch-building a 1/6 scale figure of WWI German ace Oswald Boelcke, as well as FSM's regular mix of columns and departments!

**ALL IN
JANUARY/
FEBRUARY
FSM!**



FROM THE EDITOR

American Dress and Detail

TWO ISSUES AGO, with no fanfare, we added a new ingredient to FSM's bimonthly mix of modeling information, a series of illustrations called "American Dress and Detail." Intended as reference and inspiration for figure modelers, each of these color illustrations shows the clothing worn by American fighting men. Number three in the series appears on page 31 of this issue.

At the risk of alienating some international readers, it's *American* dress and detail. While some of the illustrations may show foreign troops on North American soil, the emphasis will be on domestic subjects. So much has been published, and continues to be published, on Napoleonic and other European military dress that it seems appropriate that an American magazine should concentrate on the clothing worn here. Besides, artist Rod Stafford, who started the series, is first and foremost interested in things American. So American it will be.

In just over 400 years the variety of military dress in North America has been nothing short of amazing. That means that there's plenty of subject matter for the series to explore, and I'm seeking more artists to contribute to it. Also, because the illustrations are meant to inspire modeling, we'd like to see photos of models based on "American Dress and Detail," and if we receive enough of them, I'll run a gallery of figures in a future issue.

Let us know what you think about "American Dress and Detail." Your comments will determine the direction this series takes, and if you'll let me know what subjects you'd like to see, I'll do my best to round up reference material and artists so those subjects can eventually appear in FSM.

Editor

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will show you how. In 64 pages, Paine and Stewart take you through the basics – from selecting a camera to advice on composition – then help you master advanced techniques. With this new book as your guide, you'll soon be photographing models in action, and using special effects! Buy your copy of **HOW TO PHOTOGRAPH SCALE MODELS**, \$8.95, today. Ask for a copy at your hobby shop, or use the coupon below to order direct!



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This 13¾"-tall, red-faced giant won a silver medal for Jeff Easley at the 1983 Military Miniature Society of Illinois show.





All photos, Jim Holloway

(Above left) Jeff used sheepskin scraps and jute twine for the loincloth, and the decoration is embossed copper foil. (Above right) The skin tones are Burnt Sienna highlighted with Titanium White.

FSM SHOWCASE

Jeff Easley's eye-catching giant

THE FIERCE-LOOKING creature featured on these two pages would feel right at home in Brobdingnag, the imaginary country inhabited by giants in *Gulliver's Travels*.

Jeff Easley of Lake Geneva, Wisconsin, won a silver medal at the 1983 Military Miniature Society of Illinois show for his model of an ax-wielding, enraged giant. "I tinkered with the thing for quite a while in my spare time," he told FSM. "But in an effort to have it ready for the Chicago show, I built the lower half of the body, prepared the base, made the ax, applied the fur, and painted the whole thing in about one week. I finished the model at 5:30 on the morning of the show."

"In the course of my employment as an artist at TSR Hobbies [makers of Dungeons & Dragons and other fantasy and role-playing games] I'm called on to illustrate all types of fantasy characters. Giants are a particular favorite of mine to render two dimensionally, so it wasn't altogether unlikely

that I would choose to do a 3-D version."

While he's an expert when it comes to giants, Jeff says that anyone unfamiliar with this type of subject who is going to attempt a similar model needs to acquire as much reference material as possible.

This 13¾"-tall model was constructed primarily of Super Sculpey (a clay-like modeling compound sold in craft stores) applied over a paper mache base. Jeff applied the paper mache to a partial armature of threaded rod and aluminum foil, and he used paint thinner to smooth the Sculpey to its final finish.

The giant's bushy eyebrows are from stranded electrical wire, and brass tacks and nails were used on the boots and armbands. The loincloth was made from sheepskin scraps and jute twine and the decoration on the loincloth is embossed copper foil. Jeff constructed the ax from dowel, A+B putty, and Duro E-pox-e Putty.

The model was painted with Utrecht brand oils. To create the skin tones, Jeff

applied straight Burnt Sienna, then highlighted with Titanium White. He painted the boots with Burnt Umber and buffed them while the paint was still wet. To achieve the silver look on the boots, ax, and other areas, Jeff stained them with Testors paint, then daubed on dilute India ink to dirty them up.

"I was pretty satisfied with the anatomical detail on the giant," Jeff says, "but at this point I can see a great potential for refining that aspect even more in the future."

"The giant is the first scratchbuilt figure I've built since I made a caveman diorama for a sixth grade class project, though I've done related projects my entire life. Until recently, I was unaware of the various exhibitions held regularly around the country. I hope to start producing models on a regular basis and, if so, fantasy-related subjects will probably remain my favorite theme."

If Jeff's new models are as striking as his giant, the rest of us can hardly wait to see them.

FSM



Superdetailing Tamiya's 1/35 scale M1 ABRAMS

Data and techniques for making a fine model even finer

BY STEVE ZALOGA

THESE DAYS, the quality of new armor kits is so high that a fine model can be built out of the box. The Tamiya M1 Abrams tank is such a kit, but like most kits it includes some small details that have been simplified. Correcting those simplified details is the subject of this article.

The main areas requiring attention are the tank commander's cupola, rear engine exhaust gratings, loader's M240 machine gun, turret basket, smoke mortar mounts, lights, and muzzle reference system. Figure 1 shows the affected areas.

Revising the commander's cupola. The basic problems with the tank commander's (TC) cupola are that the periscopes are molded in solid, opaque plastic (the rest of the kit's periscopes have clear inserts), and the detail on the M2

machine gun mount is oversimplified. Since correcting the periscope problem is the most difficult aspect of this project, let's start there.

The first step is removing the molded periscopes from the cupola, which is an integral part of the upper turret half (part C3). Figure 2 shows the portions that must be cut away. I used an X-acto razor saw, and had to work carefully on the right side so I didn't remove the lower base section where the TC auxiliary sight (B6) is attached.

Once the molded periscopes have been removed, carefully file and sand the cupola flush in these areas. I inserted clear plexiglass periscopes from below, the same way the real periscopes are mounted, so the next step was to cut appropriate rectangular openings in the cupola. Cutting five

precise 5 mm x 1.5 mm openings may sound like hard work, but it's made a good deal easier because the openings are almost exactly the size and shape of a standard flat needle file. I started the holes with a drill, then worked with files and a Dremel motor tool until I could fit a fine flat needle file into the rough openings to finish the rectangles.

You'll also have to hollow out the periscope mount at the rear of the cupola where the turret hatch hinges are to be fitted. I did this with a Dremel tool and fine cutting burrs, followed by filing.

Next replace the periscope covers. Hollowing out the kit covers would be more work than making a new set from .010" sheet plastic, so I scratchbuilt them, Fig. 2. Take care to make the



(Top, left and right) Blue panels taped to the turret identify this Abrams as a tank of the "Blue Army" on maneuvers. The device located midway along the gun barrel is a launcher for pyrotechnics that simulate main gun firing. (Above left) Details added to the turret rear include fabric webbing for stowing personal gear and an antenna mount. The red handle in the recess below the turret is for actuating the fire extinguisher. (Above center) Steve extensively rebuilt the engine gratings, reworked the rear lights, and (above right) left off the panels over the drive sprockets.

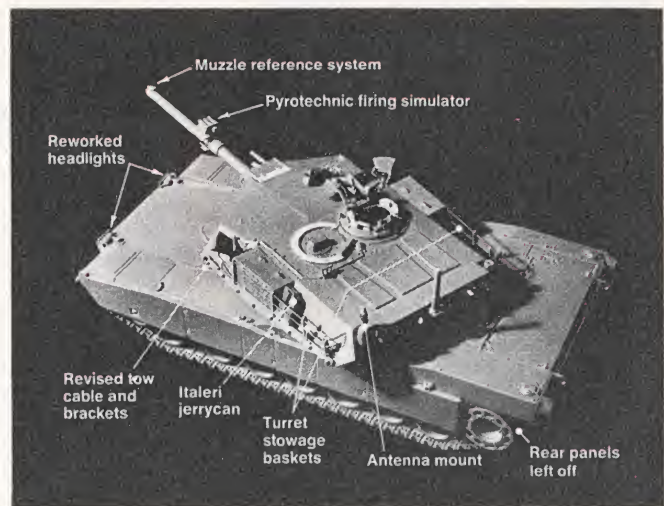
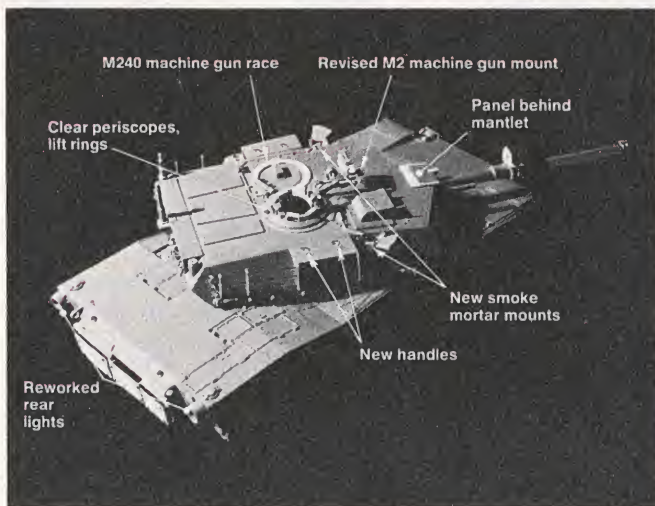
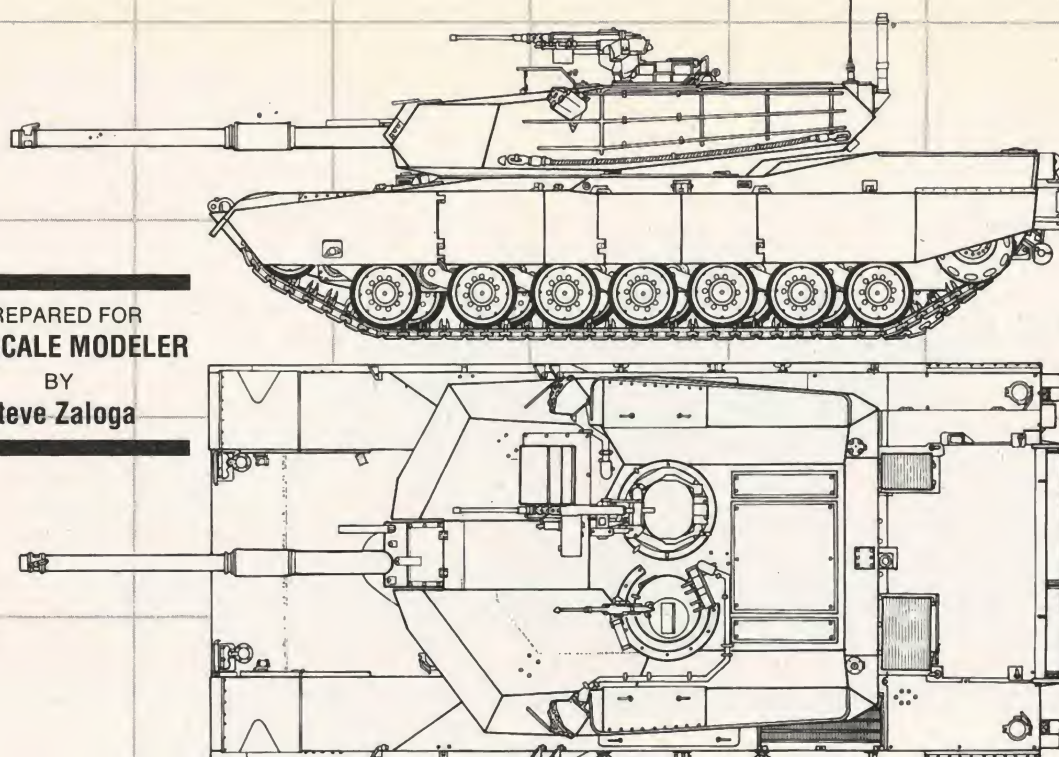


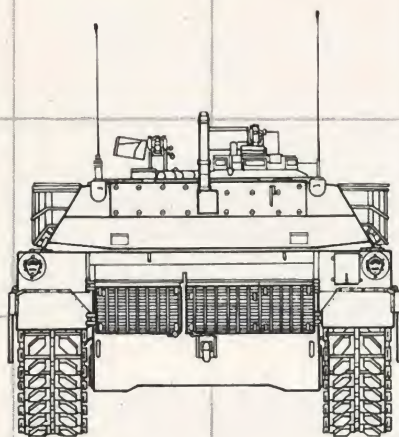
Fig. 1. An overview of the reworked areas and added details on the Abrams.

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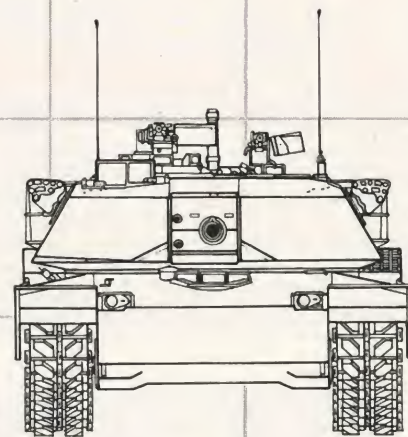


M1 ABRAMS

1/70 SCALE



Length (hull):	310.5"
Width:	144"
Height (to turret roof):	93.5"
Ground clearance:	19"
Track width:	25"
Combat weight:	60 tons
Ground pressure:	13.3 psi
Maximum speed:	40 mph (cross-country)
Engine:	Avco 1500 hp turbine
Fuel:	Diesel
Operating range:	275 miles
Crew:	4
Primary weapon:	105 mm rifled cannon (M68)
Coaxial weapon:	7.62 mm machine gun (M240)
Loader's weapon:	7.62 mm machine gun (M240)
Commander's weapon:	.50 caliber machine gun (M2)
Ammunition storage:	105 mm 55 rounds 7.62 mm 11,400 rounds .50 caliber 1,000 rounds
Smoke generation:	M250 grenade launcher, integral engine smoke generator



covers uniform, and be sure they are not so large that they prevent the hatch from closing properly.

Clear plexiglass periscopes. I made periscopes from $\frac{1}{16}$ " clear plexiglass. You can find this clear acrylic material at large art supply shops or plastic supply houses (check your Yellow Pages under "Plastics"). Art shops usually sell plexiglass by the foot, and a 12"-square panel will furnish periscopes for several dozen tank models. The plastic sheet usually comes backed on both sides with brown protective paper so you don't scratch the surface while you

cut the material, and you should leave this paper on.

Acrylic is tougher and more brittle than sheet styrene, so I cut it with a razor saw. Although it is possible to cut plexiglass by scoring the surface and then breaking it along the scored line, this technique leaves a jagged edge. For periscopes, we need an even, square edge, so cut all the way through with the saw. Since all the cupola periscopes are 4.5 mm wide, I cut a 4"-long strip this width. After cutting, plane the cut edges of the strip by scraping with the edge of an ordinary X-acto No. 11 knife

blade, then sand and polish with progressively finer grades of sandpaper.

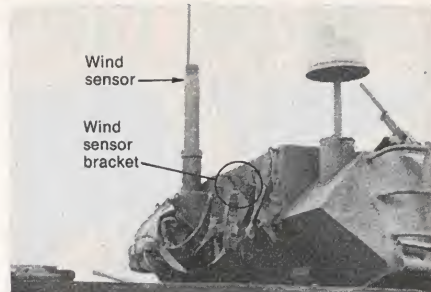
Now cut individual periscopes from the strip. I cut these larger than scale size (about 7 mm high) because the extra length makes the tiny parts easier to handle. After cutting each periscope, polish the cut edges with a fine file, then test fit it into its opening from underneath. Once the parts fit properly and all cutting and polishing is done, you can remove the protective paper. Usually the paper leaves traces of adhesive residue which can be removed with rubbing alcohol.



Muzzle Reference System details.



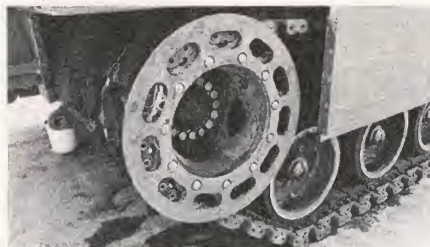
Smoke mortar base



Wind sensor

Wind sensor bracket

(Left) The turret side, showing the smoke mortar bracket and the U clips for the tow cable. (Right) The turret rear, with the rest bracket for the wind sensor and the attachments for stowage webbing. The amber "bubble-gum" light is fitted to test vehicles.



Rectangular opening

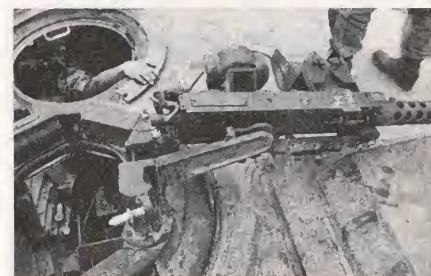
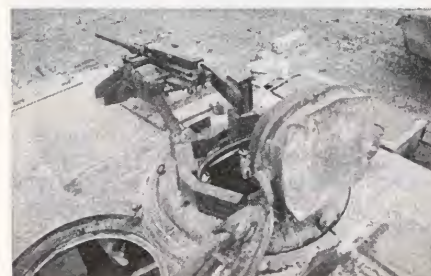
(Above left) Note the undercut on the engine gratings. (Above right) The rear light covers on production M1s include small rectangular openings not found on the kit.

PRODUCTION M1 DETAILS



Fire extinguisher handle

Drainage hole



(Top of three) Note the four lightening holes in the drive sprocket, which must be added to the Tamiya part if the rear panel is left off, as here. (Middle) A closeup of the headlight, also showing the fender release bar which can be added to the model using sprue. (Above) The fire extinguisher actuator must be added to the kit, as well as the drainage hole. This view also shows details of the hinged attachments for the skirt armor.



(Above and top, three photos) Details of the tank commander's cupola, including the periscopes and the M2 HB .50 caliber machine gun mount, which is normally trained and fired from inside the tank. The rear view (top left) shows the tank commander's auxiliary sight.

(Far left) The M240 machine gun and (left) the smoke mortar attachment.

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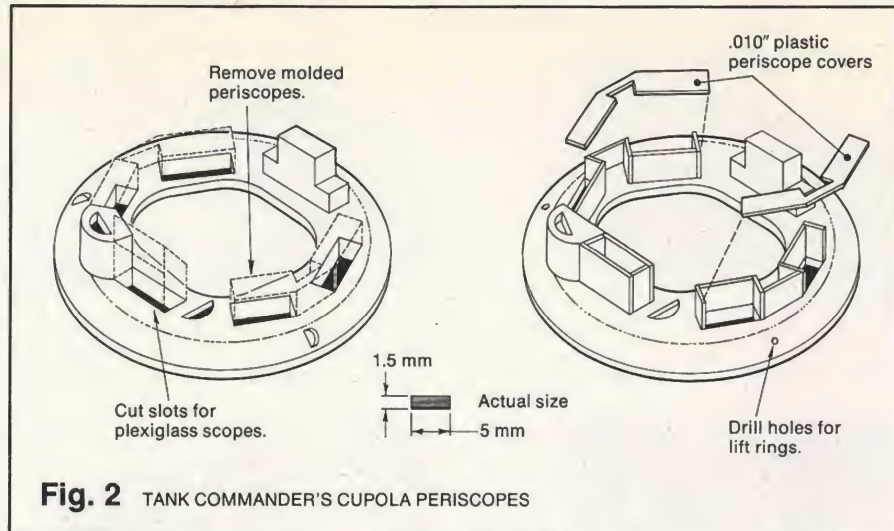


Fig. 2 TANK COMMANDER'S CUPOLA PERISCOPES

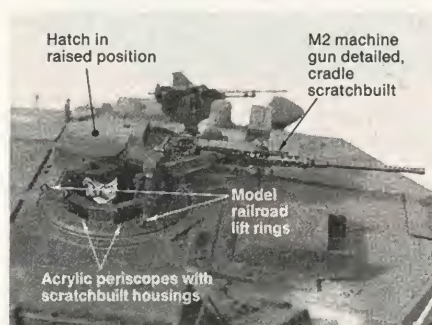


Fig. 3. The tank commander's hatch is locked open, with the cover over the commander's head to allow him all-around vision while at the same time offering protection from overhead artillery bursts.

I attached the completed periscopes to a strip of masking tape, pressing the outer face of the periscope against the tape. In addition to preventing loss of these tiny parts, the masking tape makes painting them easy — when the time comes to paint the rest of the model, I simply spray the exposed surfaces of the periscopes with Floquil Engine Black (RR10), which covers everything but the outer face.

As long as you are working with plexiglass, make periscopes for the driver's hatch (B50), loader's hatch (B31), and gunner's AN/VSG-X day-night sight (B49/B60). Each of these periscopes is a different shape and size and must be custom cut. The right half of the plexiglass back of the gunner's sight should be painted metallic blue instead of black, as the night-sight optics look different than the day portion. I prefer plexiglass to the acetate sheet provided in the kit for these periscopes, as it provides a more realistic simulation of solid, armored glass.

Finishing the TC cupola details.
Now we can turn to the other details on the TC cupola. Three lifting rings on the outer edge of the cupola ring are

represented by semicircular bulges on the kit. Remove the bulges and replace them with molded rings. Several manufacturers of railroad detail parts* offer small packets of black plastic lift rings, so a trip to your local railroad hobby shop is in order. These rings are handy, and later on I'll point out other places on the model where they are needed.

The next item to rework is the TC auxiliary sight (B6). This consists of an armored cover with a tubular periscope sight inside. I hollowed out the kit part using a cutting burr in a motor tool, then added a piece of round stretched sprue to represent the periscope. The oval sight is a modified Grandt Line No. 5039 HO scale turnbuckle. I added the rest of the small details to the auxiliary sight using stretched sprue, and mounted the right attachment arm (part B4) for the machine gun.

The main problem with the machine gun mount on the TC cupola is oversimplification. The cradle for the M2 machine gun is too small and not sufficiently intricate. I cut away the cradle from the machine gun (B11), then built up a new cradle from scratch.

The basis for the scratchbuilt cradle is a length of sprue cut in half and hollowed out to form a small, U-shaped channel. The hardest aspect of this operation is getting the cradle shaped so that the machine gun fits properly inside it. The photos of the real tank show how intricate this cradle is, but keep in mind that much of the detail is hidden when the machine gun is attached, so you don't have to go overboard detailing the cradle. I improved the hydraulic cylinder (B3) by cutting

*Detail Associates, P. O. Box 197, Santa Maria, CA 93456.
Grandt Line, 1040B Shary Court, Concord, CA 94518.
Precision Scale Co., 1120-A Gum Avenue, Woodland, CA 95695.

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the cylinder off the attachment arm, removing the flash between the pieces, and reattaching the cylinder. Part B5 is basically sound, but the area where it attaches to the cradle is crude, so I cut off the locating plug and substituted a more delicate one.

The ammo box and its cradle (B7, B8) are also too simple. I scraped off the cradle and scratchbuilt a new one from sheet plastic, then added lifting handles on the outside end of the box, built a new feed channel from sheet plastic, and added ammunition from a package of Squadron German infantry details.

Reworking the M2 and M240 machine guns. The M2 machine gun, Fig. 3, is pretty good, but can use extra detailing. I drilled out the cooling holes on the barrel, trimmed away flash, and filled in the gaps left when I removed the original cradle. I also drilled out the barrel and cut off the front and rear sights (these are not ordinarily fitted; the machine gun is remote controlled and aimed with an internal sight). Instead of being glued into the cradle assembly, the M2 was left off the tank so it could be painted separately.

The M240 machine gun (B17) requires less work than the M2. Cut the cradle off the gun, sand the pintle mount arms off the collector box under the gun, and replace them and the sides of the cradle with delicate sheet plastic parts. Add smaller details made from sheet plastic and stretched sprue.

I also threw out the M240 gun race (B32), replacing it with a thinner piece made from .010" styrene sheet. You can accurately cut circular pieces like this using a drafting compass with a frisket cutting attachment. Available at art supply stores, the cutting attachment is used in place of the drawing lead. Don't use the sharp end of the cutting attachment when cutting sheet plastic — it tends to wander. Instead, use the blunt end of the tip, which is sharp enough to scribe the plastic without straying off course.

I painted both machine guns the same way. First, I sprayed them with Floquil Engine Black (RR10). When the paint was dry, I rubbed a pencil against fine sandpaper to make powdered graphite, which I applied to the guns with my finger to give them a metallic sheen. Finally, I used a silver-colored pencil to bring out metallic highlights. The machine guns were attached after the rest of the tank had been painted.

Finishing the turret details. The mounts for the smoke mortars (B21, B22) are crude, so I made new ones from sheet plastic. The turret baskets (B1, B2, B56) are too thick, so I substituted brass wire. The hardest part of this is not making the new wire pieces, but filling in the large holes on the tur-

ret side where the original plastic parts fit. I plugged the holes from the inside using conical pieces of stretched sprue, covering each on the outside with a drop of a homemade filler consisting of sheet plastic scraps melted in liquid plastic cement, Fig. 4. When the filler is dry, cut the plug flush with the surface of the turret and sand smooth.

Replace the handles on the stowage bin covers (B34, B35) with the more delicate lifting handles from an Italeri M-47 tank kit. I substituted an Italeri jerrycan for part B54, and added a new jerrycan rack made from sheet plastic. The new webbing strap is .005" styrene. There should be a small panel behind the mantlet (B40) and the turret roof; I made one from sheet plastic and added hinge detail.

The two projections on parts B40 and B26 are attachment lugs for a searchlight; each should have a small hole drilled through it near the end. Part B25 is a flash suppressor for the coaxial machine gun and should be hollowed out. The flash suppressor has a noticeable star-shaped pattern inside the tube, which I added with thin stretched sprue. The muzzle reference system on part B24 is crude, so I replaced it with sprue and plastic sheet. Note that the top portion of the muzzle reference system is canted slightly to the right, since it is optically aligned with the gunner's sight.

On the back of part B41 are several attachment brackets for a web net for stowing personal gear. These brackets are small rings, so I used tiny model railroad lift rings for them, and made webbing from thin strips of aluminum foil. Part B41 also lacks the small bracket that locks the meteorological sensor (B53) when it is folded down to the right.

I used the end fittings from the kit tow cable (A4), but substituted braided lead wire for the cable. I bought the fine lead wire at a fishing store, where it is sold for weighting handmade fishing flies. Available in various thicknesses, this material is handy for all sorts of small-diameter wiring and cabling on armor models (I also used it to build up the base of a new antenna on the left turret rear).

To braid the lead wire into cable, I cut three strands about a foot long, clamping one end of each into the collet of my Dremel motor tool. With the speed control at the slowest setting possible, I held the other end of the lead wires and turned on the tool. This procedure slowly braided the wire much more evenly than I could have done by hand. Another advantage of using lead wire to simulate cable is that it is the same color as the real thing. I added new U-shaped brackets to the turret, as well as the other cable fittings.

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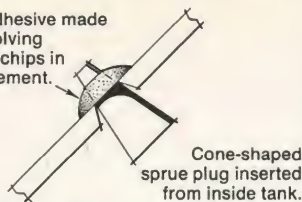
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When filler has dried completely, slice off filler and end of plug flush with surface.

Fig. 4 PLUGGING TURRET HOLES

Hull details. Next, work on the hull. I spent the most time rebuilding the rear engine exhaust gratings on part B45. The grilles provided on the kit are just covers over the real vent gratings. Also, the basic shape of this assembly has been simplified and lacks the pronounced undercut of the real tank. Start by removing most of the grille assembly from part B45, Fig. 5. Do this carefully, since the grille detail will be used later.

Next cut the grilles free from all the surrounding material. Use a fresh razor saw blade, cutting as close to the surface as possible while trying to keep all three grilles the same thickness. Once the grilles are free, sand their backs until the recessed areas between the bars are nearly transparent, then cut out all the rectangular openings between the bars using a brand new No. 11 X-acto blade. This requires great care, but the resulting grilles are nice and delicate.

Put the modified grilles aside and build a new exhaust vent assembly from sheet plastic. The simple, boxlike structures are .020" sheet and the slats are Evergreen* .010" x 1/4" styrene strips (No. 109).

While working on the vent assembly, I also cut off the two rear light assemblies to rework them and add the small rectangular openings in the light cov-

*Evergreen Scale Models, 1414-127th Place N.E., Suite 107, Bellevue, WA 98005.

ers (omitted in the kit). I removed the rear lights from the light covers, then used a steel burr in a Dremel motor tool to cut out the semicircular rear red lights so I could insert an M. V. Products red lens later on. This done, the light assemblies were reattached to the rear hull plate.

Final details and assembly. Final detailing included adding new hinges to the rear in place of the kit parts (B14, 15) which are too simple and lumpy. I also removed the hinges from parts B12 and B13 and replaced them with sheet plastic. The towing hooks on the lower portion of part B45 were drilled out, as were those on the lower front hull.

Before attaching the superstructure (C1) to the hull, cut out the rectangular and circular openings on the left side of the hull. Back up the rectangular opening with sheet plastic and add a fire extinguisher handle. The detail photos of the real tank also show the hinges and attachment points on the side armor skirts. The kit simplifies these, so you might want to add small details here as well.

I bored out the front headlights (A5) so I could insert M. V. Products lenses after painting. I also cut off the handles on the hull stowage boxes and replaced them with handles from the Italeri M47 kit. I did not glue on the driver's hatch, since I needed access to insert the plexiglass periscopes after the model had been painted.

I made two minor modifications not shown on the scale drawings. First, I added a pyrotechnic firing simulator above the gun barrel. This was made from aluminum tubing and sheet plastic. Second, I removed the rear armor skirts. In the field these are sometimes left off to gain access to the drive sprocket and to prevent mud from building up on it. If you leave off the rear panels, be sure to cut the four oval lightening holes in the inner walls of the drive sprocket.

Painting and weathering. I finished

my M1 in the MERDC summer verdant scheme. Testors has the four required colors in its new Model Master series: Dark Green (FS 34079), Interior Green (FS 34151), Radome Tan (FS 33613), and Flat Black (FS 37038). The official pattern is accurately portrayed on the Tamiya instruction sheet. I added "Blue Army" summer maneuver markings on the turret front. These large temporary insignia are sometimes attached with masking tape, which is the way they are shown on my model.

I weathered my M1 heavily, as the Abrams tends to get very dirty when traveling cross-country at high speed. I started by lightly covering the whole model with a thin wash of dirt-colored Polly S (I like PCA 530 Field Drab for dark schemes like this one). I mucked up the engine deck with watercolor oil and fuel stains, then streaked the lower portions of the tank using various shades of artist's gouache. Gouache (also called casein) is a tube watercolor which dries matte and is more opaque than common watercolor. It also blends well, so is good for dirt effects.

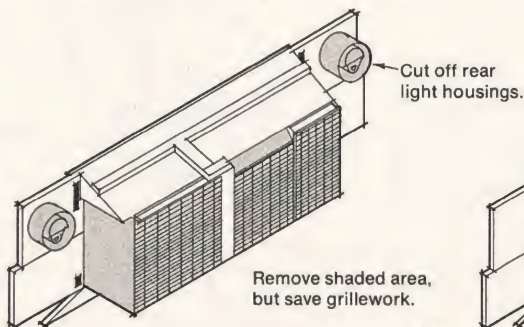
My last step in weathering was to add texture to the grime. Even in average soil conditions tanks build up heavy accumulations of packed dirt, which I modeled with a mixture of Testors body putty, rubbing alcohol, and Polly S paint. Squeeze some putty on a mixing palette, and using a cheap brush, mix in small quantities of rubbing alcohol and dark brown Polly S to make a mud-like mixture. I sometimes add fine grass-green string or yarn fibers after the paint has been stirred in to give the look of chunks of turf.

Before applying the mud mixture to wheels, track, or hull parts, give the areas where it will be applied a light wash of rubbing alcohol. This prepares the surface, and also allows a certain amount of the mud color to flow into the surface near the blobs, giving a more subtle and realistic appearance. (I strongly recommend that you try this technique on an old model before attempting it on your latest masterpiece.)

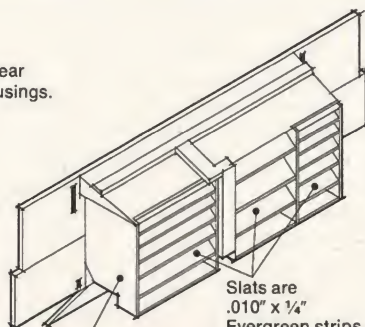
The main trick in making this technique work is using dark Polly S. The mixture of paint and putty invariably dries much lighter than it looks when damp, and if you are not careful, the mud will dry much too light and make your tank look like it's just been driven through a limestone quarry.

My M1 took me about 50 hours to build and detail, and it won a first place at the 1983 IPMS Noreastcon regional. If you haven't tried this kind of project before, you'll find it's very satisfying to look at the completed model and know that some of the fine detail is due to your efforts and not to the skill of the moldmakers. Good luck on your 1/35 scale M1!

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Remove shaded area, but save grillework.



Build up box structures from .020" styrene.

Slats are .010" x 1/4" Evergreen strips.

Fig. 5 REWORKING THE ENGINE GRATINGS

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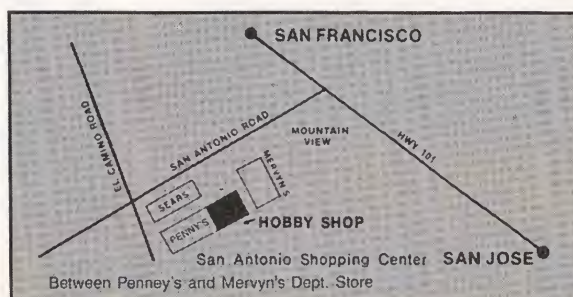
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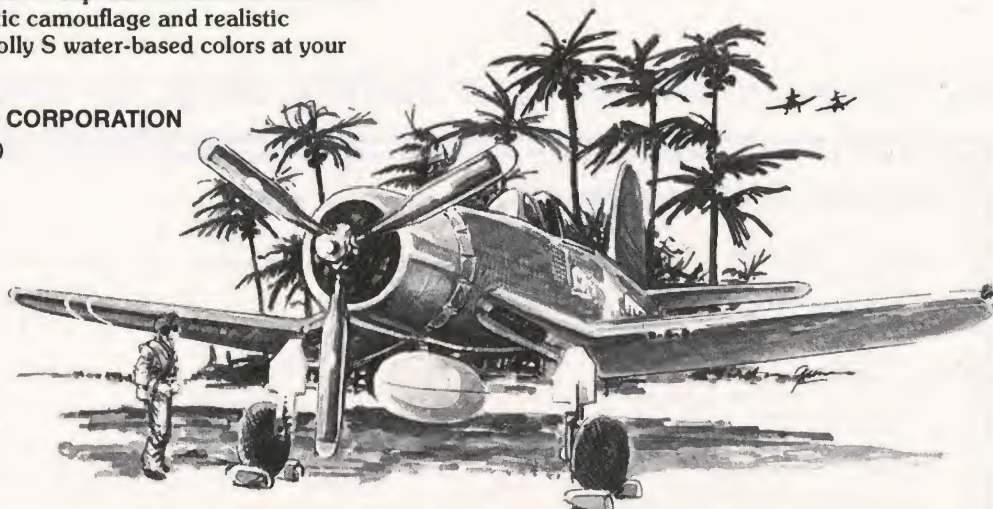
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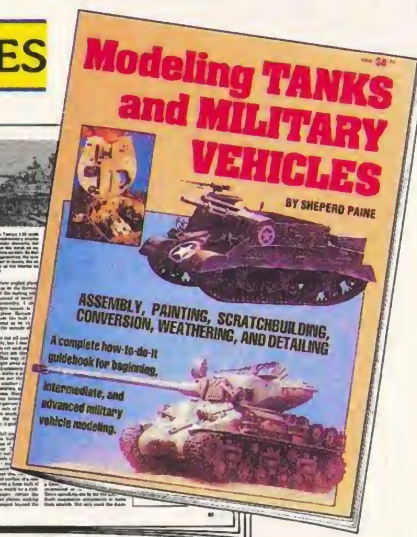
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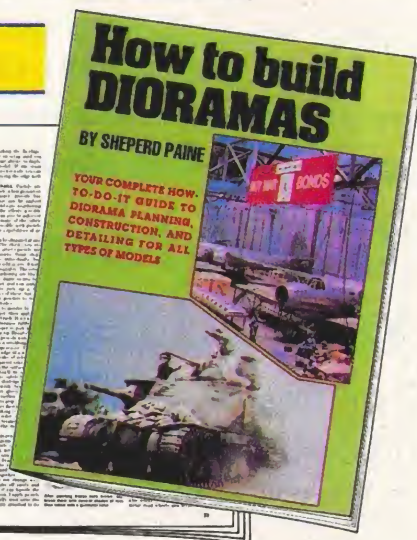
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IROQUOIS WARRIOR, FRENCH AND INDIAN WAR

BY R. J. STAFFORD
ARTWORK BY THE AUTHOR

A GENERATION BEFORE European colonists came to the area in numbers, the lands south of Lake Ontario were occupied by the Iroquoian-speaking peoples of the Five Nations: from east to west, the Mohawks, Oneidas, Onondagas, Cayugas, and Senecas. With the adoption of the Tuscaroras in 1722 the Iroquois became the Six Nations.

The Iroquois lived in stockade villages built on defensible sites. From the earliest age Iroquoian males were trained in warfare, and the Confederacy conducted successful campaigns against all its Indian neighbors.

Both French and British attempted to woo the powerful Iroquois Confederacy to their side in their colonial wars. In the French and Indian War (1754-1763), the Confederacy attempted to maintain neutrality. Finally, after British victories at Louisbourg, Fort Frontenac, and Fort Duquesne in 1758, plus the increased availability of British trading goods by 1759, the tribes of the Iroquois Confederacy had little choice but to ally themselves with the British.

The Iroquois warrior shown is typical of the period — the old notion of "naked savages" is simply not true; in fact, the Iroquois began to wear the same clothing as the whites whenever they could. This man wears leggings made from broadcloth, an article of clothing often adopted by both British and French. His headpiece is a copper band sewn over a red skullcap adorned with turkey feathers. The two upright feathers signify that he is a member of the Onondagas, the nation that lived in the area between present-day Syracuse and Owasco Lake in upstate New York.

The warrior wears a white man's linen shirt adorned with brass either traded for or taken in combat. The weapon is a trade musket. Whether made at home or obtained in trading,

the bag carried on the hip was often richly adorned, either by the warrior himself or his woman. Under his sash on the right side is a scalp.

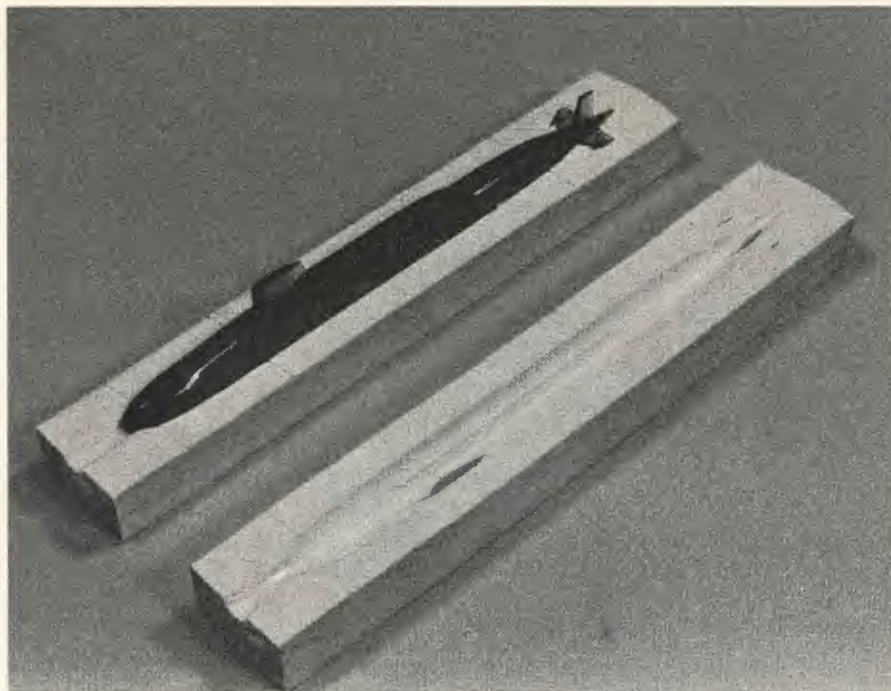
The white and black face markings signify his preparedness for war. The hair is worn long. The popular conception of Iroquois warriors having shaven heads is only partly true. Such styling was a matter of individual choice, and some whites who adopted Indian ways shaved their heads.

FSM



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David casts epoxy resin in RTV silicone rubber molds. The hull of this foot-long submarine is cast in one piece and small details are attached later.

Casting resin parts in RTV molds

An easy way to reproduce hard-to-make scratchbuilt parts

BY DAVID MERRIMAN

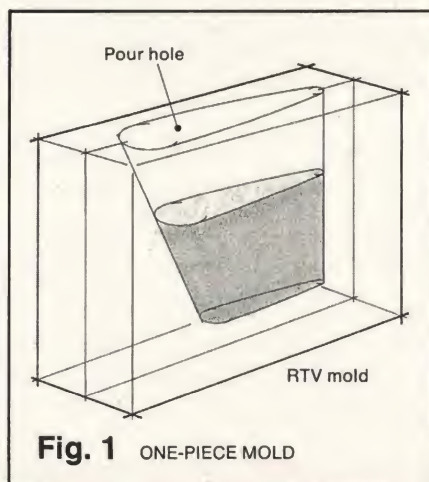
ANYONE WHO HAS slapped model kits together for a while, especially a scratchbuilder, eventually needs a way to mass-produce an intricate original part. Like any technique, resin casting in RTV molds suits itself to specific situations. Used correctly, it saves many frustrating hours of repetitious work. I cringe at the thought of scratchbuilding an item more than once, so I use this method to reproduce 12"-long submarine models for defense contractors and military associations.

I have to make many duplicate models, so I appreciate the virtues of resin casting. When I receive a repeat order, I simply pull the molds off the shelf and cast everything with one batch of resin. About 20 cast parts can be poured, cured, finished, sanded, and painted in six hours! If I had to build each part from scratch (using block and sheet plastic), I would have to burn up nearly 30 hours.

Cast resin parts are strong, easily

machined, inexpensive, and many can be made from one mold. However, they are relatively heavy and difficult to produce in thin sections (thin walled items are better produced by vacuum-forming plastics).

Making RTV molds. I make molds



using RTV (room temperature vulcanizing) silicone rubber, a smooth, nearly chemically inert material which, in its liquid state, can be poured around any pattern. When cured, RTV is easily removed from the original and flexible enough to bend away from negative drafts (undercuts) in complex shapes.

RTV generates little heat as it cures. Both General Electric and Dow Corning RTVs have a choice of slow or fast cure catalysts; I usually choose the slow cure to allow enough time for any bubbles trapped during mixing to escape.

Now, the bad news: RTV is expensive, but its many advantages outweigh its cost. In terms of time saved (and time is money), I always wind up ahead of the game using RTV.

I use three types of molds to cast parts. The simplest is the one-piece, open mold, Fig. 1. An open mold is the easiest to make and is ideal for simple patterns. The widest side usually serves as the opening through which the resin is poured. The patterns and subsequent castings pop out easily, Fig. 2; even items with modest undercuts can be coaxied out by flexing the mold. RTV will take a lot of stretching before it tears and even when torn, it returns to its original shape and hides the tear.

First, I attach the pattern to a firm base and build a mold box of .030" styrene around the pattern. After the box is set, I pour enough RTV into the box to completely cover the pattern and allow it to cure. When cured, the mold box is torn away and the pattern removed from the mold.

A closed mold, Fig. 3, is needed when a more complicated form is to be molded. The pattern must be suspended in the mold box so that the molding material can completely surround it. I run dowels from the pattern to the walls of the mold box. After the mold has cured, I peel away the mold box and pull out the dowels. Now I have an RTV block with the pattern buried inside. To remove the mold, I cut it in half using the dowel holes as markers along the separation line.

The separation line doesn't have to be straight; in fact it's better if it's uneven so that when the mold halves are joined for casting, they will key into each other to ensure good alignment, Fig. 4.

Figure 5 shows the third type of mold I use. This two-part mold allows casting parts that have small areas that would be impossible to cast by the gravity-feed method used in the other two molds. This mold is for an old-style fluked anchor, and features a built-in reservoir, sprues, and air vent channels. When the anchor is cast, the resin fills the mold from the bottom and the displaced air flows out of the

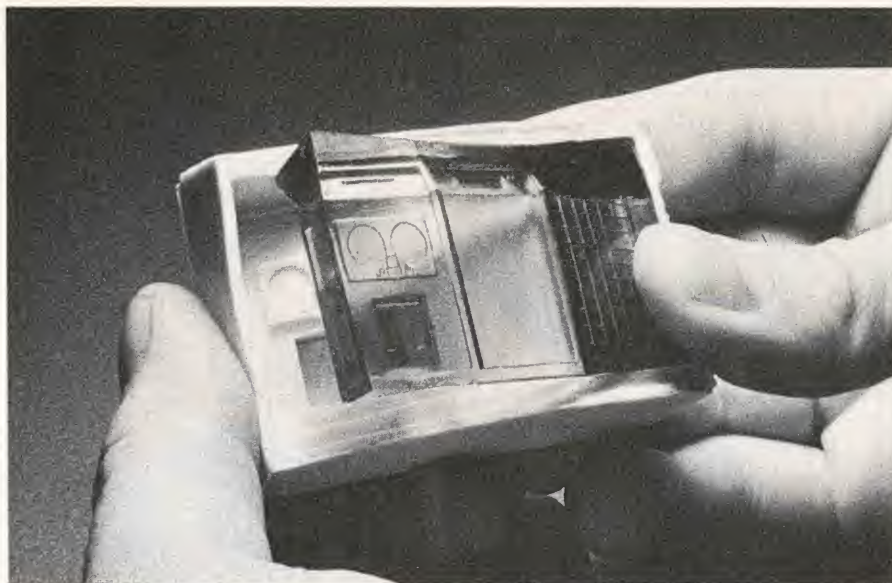


Fig. 2. This relatively flat computer panel pops easily out of its one-piece RTV mold.

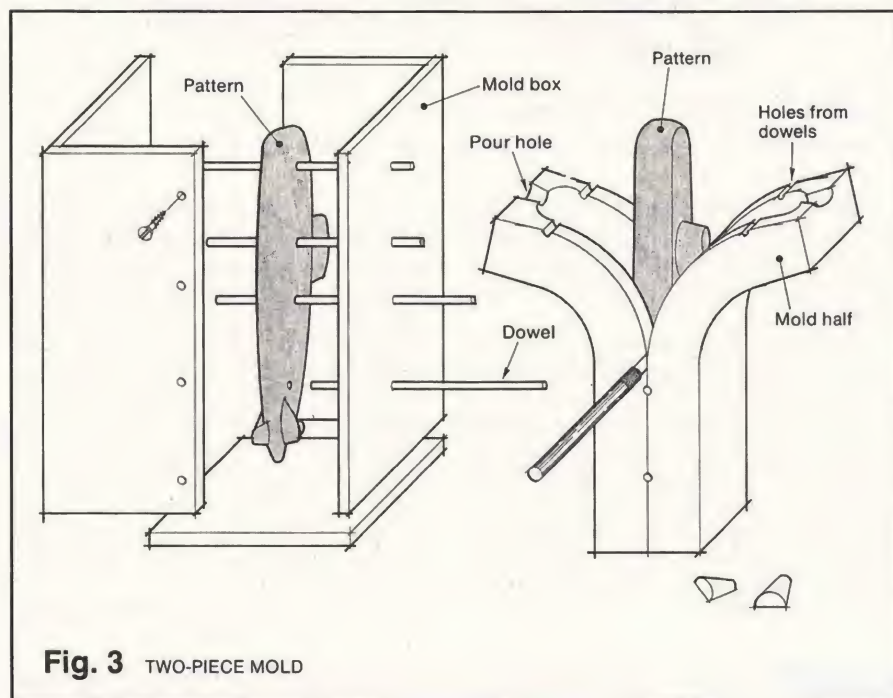


Fig. 3 TWO-PIECE MOLD

vents at the top, eliminating bubbles.

The major factor in designing this type of mold is that the volume of the reservoir must be greater than the combined volumes of the casting cavity, sprue, and vent channels; twice the volume wouldn't hurt.

Sometimes I'm faced with a pattern that cannot be removed easily from a two-piece mold. Take a ship's propeller (screw), for example: Note that the complicated shape makes it impossible to remove the pattern without damaging the mold. With shapes like these, I make the molds one half at a time, Fig. 6.

The pattern shown is a fast attack submarine screw. First, I covered the rear portion of the screw and blade

faces with modeling clay and secured small wires to the tips of each blade to act as vent channels in the completed mold. The shaft extending from the rear of the hub acts as the reservoir in the mold.

To make the first mold half, I made a circular mold box and poured RTV over the exposed portions of the screw. After the RTV cured, I removed the clay, exposing the inside faces of the pattern. Next, I coated the cured RTV face with Vaseline to prevent the second half of the mold from sticking to it. Again a mold box was built up and RTV was poured over the rest of the screw. After this half had cured, I separated the mold halves and removed the pattern, Fig. 7.



Fig. 4. The separation line of two-part molds can be ragged to help ensure alignment of the mold halves.

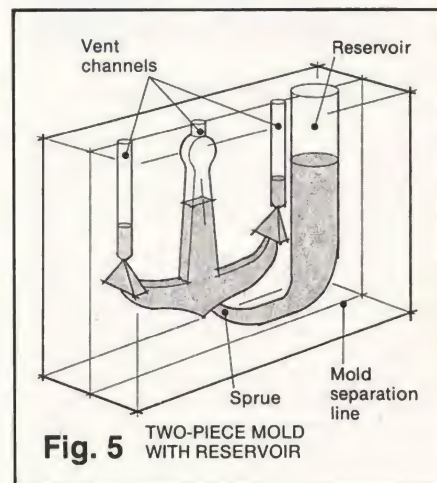


Fig. 5 TWO-PIECE MOLD WITH RESERVOIR

Casting resins. Two types of casting resins can be used to make parts: polyester and epoxy. Polyester resin is the familiar resin component of glass-reinforced plastics and can be found in craft stores. The rate of cure of both polyester and epoxy resins depends on the amount of catalyst added. Polyester resin shrinks more than epoxy, an important consideration in large-volume casting. Epoxy resin's shrinkage is almost nil, but it is more expensive than polyester.

Shrinkage in large polyester resin castings can be greatly reduced by adding micro-balloons (tiny, sand-like phenolic spheres) to the resin. Another way is to place a wooden or plastic plug into the mold cavity before pouring the resin, Fig. 8. The plug can fill as much as 75 percent of the mold cavity, resulting in a lighter casting with less shrinkage.

Since shrinkage is not a major problem with small volume pours, a large mold can be filled by several small pours instead of one large one, allowing each pour to cure before adding the next. When the resin cures it creates heat and becomes brittle. Pouring the resin in small volumes produces a casting that is less brittle and closer to the size of the original.

Casting in RTV. Prepare whatever



Meet David Merriman

David started scratchbuilding at age 10 when he discovered there weren't many kits available of his favorite subjects: spaceships and submarines.

He's built models for museums and individual collectors, but most of his work is for defense contractors, building desktop models for executives as well as company giveaways. This work ranges from tanks to submarines, but some models are of "paper studies" that never go into production.

David is a diver on active duty in the U. S. Navy, inspecting and repairing ships underwater at Norfolk, Virginia. He models in his spare time, and he hopes to continue building professionally after he retires from the Navy.

resin you choose according to the manufacturer's instructions. I recommend using polyester casting resin outdoors or in a well-ventilated garage. Castings in open molds are the easiest to

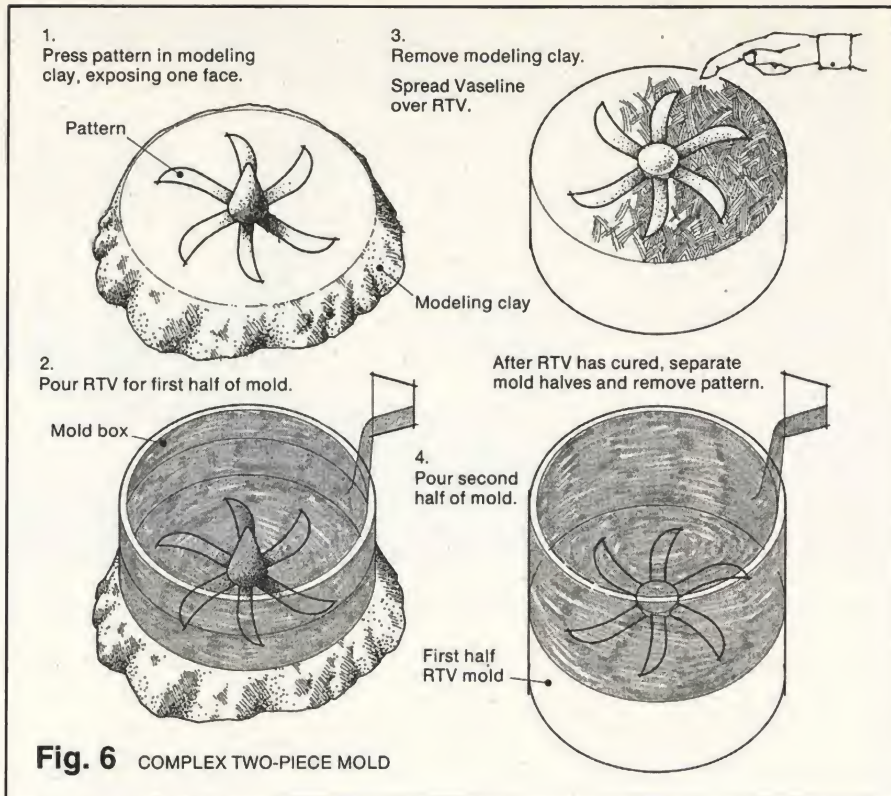


Fig. 6 COMPLEX TWO-PIECE MOLD

make; simply fill the mold with resin. When the resin has thoroughly cured, pop the casting out of the mold and repeat the operation as many times as you need.

Two-part, closed molds are more difficult to use. First install the plug (if needed) and assemble the mold halves with rubber bands, Fig. 9. Complex shapes in two-part, closed molds are likely to trap air, so it's important to get rid of any bubbles before the resin sets. The easiest way is to apply a vibrator to the bottom of the filled mold. This jars loose any bubbles clinging to the cavity walls.

Another way to eliminate bubbles in the resin is to place a vacuum cleaner hose over the pour hole and switch the machine on. The lower pressure outside the mold causes the bubbles to enlarge, break away from the cavity walls, and float out the pour hole. Make sure the mold is completely airtight except for the pour hole; if it isn't, you'll suck the resin out with the bubbles (with disastrous effects on your vacuum cleaner)! Once the resin has cured, remove the rubber bands, split the mold apart, and extract the casting, Fig. 10.

The two-part mold with the reservoir



Fig. 7. This sub screw mold was made one half at a time.



Fig. 8. The wooden plug is placed in the mold before the resin is poured. The plug (which remains inside the casting) decreases the amount of expensive resin needed to fill the mold, decreases weight, and lessens shrinkage.

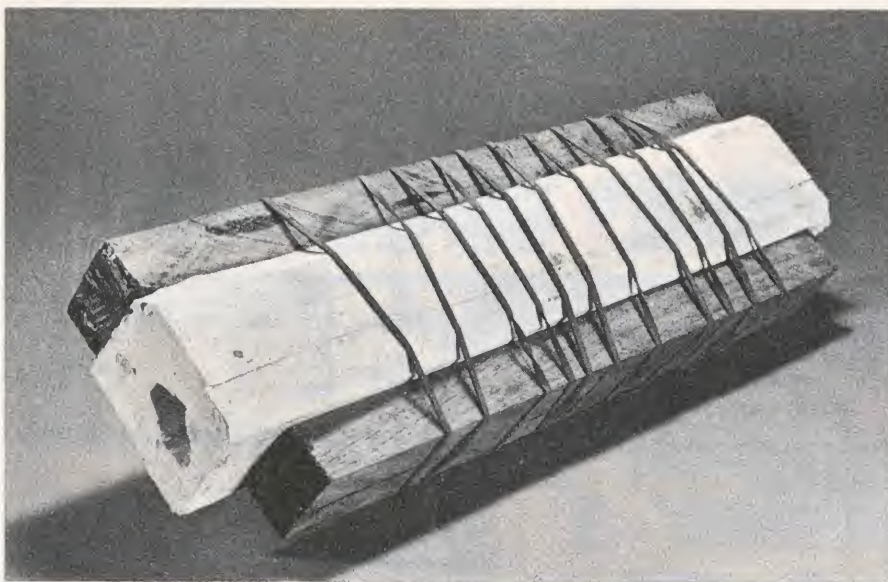


Fig. 9. Blocks and rubber bands hold this two-piece mold together while the resin cures.



Fig. 10. After the resin has cured, the mold is opened and the casting removed.

is the trickiest of all. The resin poured into the reservoir flows through the sprues into the various branches of the cavity, displacing air through the vent holes. Occasionally, you'll need to help the air out of the mold by placing a soda straw over each vent and applying suction. Each vent should overflow slightly. Replenish the resin in the reservoir as required, making sure it remains full; otherwise, the resin in the cavity will back into the reservoir.

Finishing the castings. The biggest chore in finishing is to remove excess cured resin from the castings. Cut off the sprues and sand off the flash on the mold seams with 400-grit sandpaper. Next, use 000 steel wool to buff the parts smooth. As far as drilling, grinding, and other machining, cast polyester and epoxy have nearly the same characteristics as acrylics. Drilling should be done with care to avoid chipping the surface.

Many types of adhesive can be used to join cast parts to themselves or to other materials. I find that a mixture of super glue and micro-balloons is best.

However you approach it, resin casting in RTV molds saves time and ensures uniformity when making duplicate items. Now go out there and get your fingers sticky! **FSM**

SOURCES

RTV rubber molding material:

Silicones RTV .11: General Electric Company, Silicone Products Division, RTV Products Department, Waterford, NY 12188.

Silastic E RTV Silicone Rubber: Dow Corning Corporation, Midland, MI 48640.

Epoxy casting resins:

Epon 828 Epoxy: Read Plastic, Inc., 12331 Wilkins Avenue, Rockville, MD 20852.

Shell Epon Epoxy: E. V. Roberts and Assoc., 8500 Steller Drive, Culver City, CA 90230.

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The author hard at work combining two of his hobbies — using an Apple IIe home computer to simplify the mathematical side of modeling.

A computer scale converter

Don't rush out to buy a computer just to run this program, but if you already own one . . .

BY DAVID CHEVALIER

WHY NOT put a computer to work for you, converting measurements from one scale to another, determining oddball scales, and verifying hard-to-figure scale dimensions on your models? I thought for a long time how I might merge two of my hobbies by somehow applying my home computer to modeling. Here's the first result.

Remembering the confusion I usually have to go through when I try to calculate scale measurements, I developed (with some help from a fellow modeler) a simple mathematical program to remember the formulas and to do the calculating for me. The program,

which you can keyboard into your home computer, is shown in the listing.

So, what can this little program do for you? First, it's a general program, not tied to any particular scale or variety of modeling. You enter the scales, so the program works with any scale or combination of scales you encounter. The program converts all real measurements to inches, then scales them. Real (full size) measurements are shown in feet and inches; scale measurements are shown only in inches.

Using the program. The "Convert" function (menu choice C) converts real (full size) dimensions to measurements in the scale you enter. This is handy for finding how true to scale a kit is. It is

also good for placing pitot tubes, drive sprockets, mufflers, or whatever exactly where they belong when you have drawings that show full-size measurements, particularly on vacuum-formed models.

"Find actual size" (choice F) takes dimensions from your model and calculates their full-size equivalents. Be careful with this function — kits aren't always exactly the scale they claim to be on the box.

"Determine scale" (choice D) calculates the exact scale of a kit based on measurements of the model and actual (full size) dimensions from the real thing. This is particularly useful on some of the older, "fit-the-box" kits issued in the early days of modeling.

Finally, "Convert between scales" (choice S) converts a dimension from one scale to another, for example, from 1/72 to 1/48, 1/144 to 1/32, and so on. This is especially handy when you have plans in one scale but are modeling in another.

The functions can be used together. For example, you can use the "Determine scale" function to calculate the scale of a photograph (be careful — photos include perspective distortion), then use that scale and measurements from the photo with the "Convert between scales" function to calculate dimensions for your model.

The program is in the BASIC computer language. It was first written on a Radio Shack TRS-80 Model II, and has been run on a Commodore 64 and an Apple IIe. The version shown in the listing is for the Apple, and you may have to make one or two minor changes to run the program on your machine. After you've used the program you'll probably come up with useful additions of your own, and if you do, I'd like to hear about them. Write to me in care of FINESCALE MODELER.

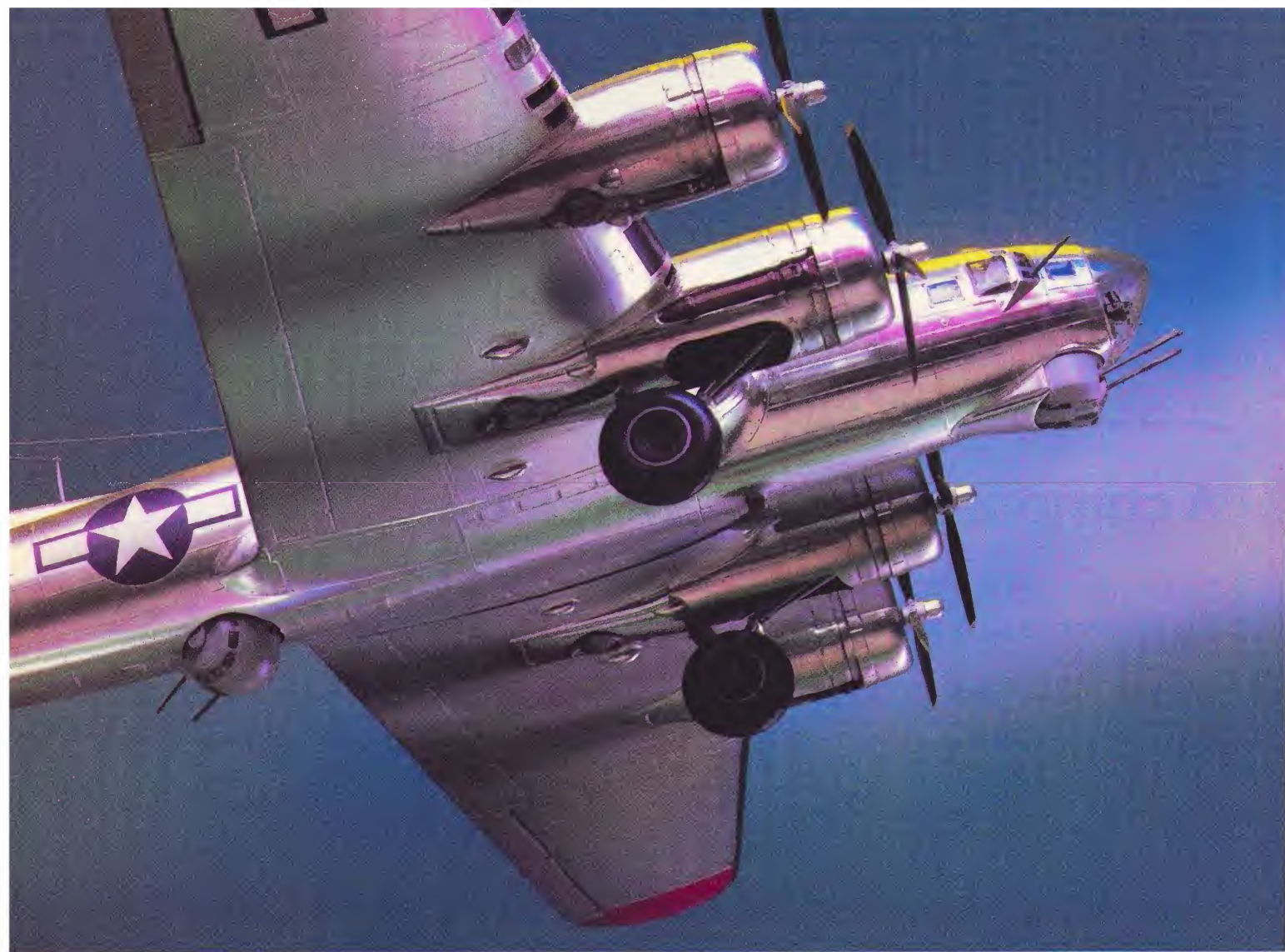
FSM

Program Listing

```

10 REM --SCALE CONVERSION PROGRAM
20 HOME : PRINT "THIS PROGRAM WILL CONVERT AN ACTUAL"
21 PRINT "MEASUREMENT TO A SPECIFIED SCALE, OR"
22 PRINT "CONVERT A SCALE SIZE TO AN ACTUAL SIZE,"
23 PRINT "DETERMINE THE SCALE OF A MODEL,"
24 PRINT "OR CONVERT FROM ONE SCALE TO ANOTHER."
30 PRINT : PRINT
50 PRINT "WHenever THE PROGRAM REQUESTS A SCALE, "
51 PRINT "ENTER ONLY THE BOTTOM NUMBER."
52 PRINT " FOR EXAMPLE, FOR 1/48 SCALE ENTER"
53 PRINT " ONLY '48."
60 PRINT : PRINT
70 PRINT "COMMAND MENU:"
71 PRINT "  CONVERT = C"
72 PRINT "  FIND ACTUAL SIZE = F"
73 PRINT "  DETERMINE SCALE = D"
80 PRINT "  CONVERT BETWEEN SCALES = S"
81 PRINT :
90 PRINT "WHICH WOULD YOU LIKE TO DO?": INPUT A$
100 IF A$ = "C" THEN 150
110 IF A$ = "F" THEN 200
120 IF A$ = "D" THEN 250
130 IF A$ = "S" THEN 310
140 GOTO 70
150 REM --CONVERT ACTUAL TO SCALE
160 PRINT "SCALE": INPUT S
170 PRINT "SIZE IN FEET, INCHES (2 ITEMS)": INPUT F,I
180 S1 = ((F * 12) + I) / S
190 PRINT "SCALE SIZE IS ";S1;" INCHES": GOTO 370
200 REM --FIND ACTUAL SIZE FROM KIT
210 PRINT "SCALE": INPUT S
220 PRINT "KIT SIZE IN INCHES": INPUT I
230 AS = I * S:A1 = INT (AS / 12):A2 = AS - (A1 * 12)
240 PRINT "ACTUAL SIZE PER KIT IS ";A1;" FEET, ";A2;" INCHES": GOTO 370
250 REM --DETERMINE SCALE FROM KIT
260 PRINT "ACTUAL SIZE IN FEET, INCHES (2 ITEMS)": INPUT S1,S2
270 PRINT "KIT SIZE IN INCHES": INPUT K
280 SC = ((S1 * 12) + S2) / K:A = INT (SC):B = SC - A
290 IF B > .5 THEN SC = SC + 1
300 PRINT "SCALE IS 1:";SC; GOTO 370
310 REM --SWITCH FROM ONE SCALE TO ANOTHER
320 PRINT "ENTER SCALE YOU ARE SWITCHING FROM": INPUT S1
330 PRINT "ENTER SCALE YOU ARE SWITCHING TO": INPUT S2
340 PRINT "SIZE IN INCHES": INPUT I
350 NS = I * (S1 / S2)
360 PRINT "SIZE IN 1:";S2;" IS ";NS;" INCHES"
370 PRINT "DO YOU WISH TO CONTINUE (Y/N)": INPUT A$
380 IF A$ = "Y" THEN 70
390 IF A$ = "N" THEN 400
400 END

```



All model photos: Gerry Humbert

Natural metal model aircraft — the easy way

It's not paint, it's not foil, it's real aluminum plate

BY DAVID W. JONES

TO ME, SCALE MODEL building is the quest for realism in miniature — with every attempt made to use materials and techniques which will accurately represent the shape and surface characteristics of the full-size original. Most modern aircraft are constructed of metal (largely aluminum) but it has been difficult to reproduce a real aluminum look with metallic paints because of the special application techniques required. And when the tedious job is done it still doesn't look quite the way you hoped it would.

I remember my first attempt to make a metal finish scale model back in the 1940s. It was a 1/48 scale "solid" balsa model kit of an F4F Wildcat which in-

cluded die-embossed aluminum foil panels to be glued on to represent the "real" look of metal. The concept was good, but it was difficult to get those aluminum foil pieces glued in place so they looked right.

Even today, you can do the same with aluminum foil, contact adhesive, and careful burnishing on injection-molded styrene kits. But even that technique leaves much to be desired. What we want is simply a thin layer of deposited aluminum on the model in the places where we want it.

The only thing that will really look like aluminum is aluminum itself, and this article tells you how to do just that: finish your model with honest-to-goodness, real aluminum!

Vacuum-plating. Recently, my friend

Monogram's 1/48 scale B-17G shows what this plating technique can do. Note exhaust stains from the superchargers air-brushed over the aluminum plate. Al Onken scratchbuilt Hamilton-Standard propellers for his otherwise stock Monogram 1/48 scale B-29. The real aluminum skin on the model makes a big difference. Complex canopy framing is plated with the fuselage. Glass areas were masked off using liquid mask. Decals are applied normally on the plated surface. Gloss red unit colors, and olive drab anti-glare panels were painted and masked before the model was plated.

Al Onken, a first-rate, enthusiastic modeler, experimented with plating his models with aluminum. The results, as you can see from the photographs, are astonishing, and the process is easy. It takes planning and careful consideration to achieve the effects you want.

There have been attempts at plated plastic model airplane kits, but the manufacturers' efforts to texture the surface give a crude, toylike appearance, not scale-like at all. Plastic kit manufacturers who need portions of their kits plated send them to a company which specializes in vacuum-plating plastic parts. There are plenty of these companies spread around the country and they usually welcome individual plating jobs from modelers.

Preparing the model. Briefly, here's what you need to do. The model is completed to major subassembly level, the areas you don't want plated are painted and masked off, and the subassemblies are sent to the platers. When they return, peel off the masking tape and finish assembling the model, adding small details, decals, and weathering. Since every model is different and modelers' tastes vary, no exact procedure can be specified, but keep these thoughts in mind as you plan and build models you want to plate:

Attach complex clear plastic parts to the fuselage, use a liquid mask, and cut out the "metal" window frame outlines with a hobby knife so they get plated. It beats trying to control silver paint with a tiny brush.

Plating exaggerates the visual effects of raised panel lines so you may wish to subdue them with fine sandpaper or convert some of them to engraved lines.

Make the subassemblies as large as possible, Fig. 1, but realize that the plater can't mount a completed model in the plating chamber. Fuselages, wings, and homemade sprues of small parts are the best way to break down a model. Each part or sprue you send to the plater must have two mounting tabs firmly and rigidly attached. These tabs support the part as it rotates in

QUESTIONS AND ANSWERS ABOUT METAL PLATING

● **Where do I find a plater?** You should be able to find a plater nearby if you live near a large metropolitan area. Look in the Yellow Pages under "Plastics — Fabricating, Finishing, and Decorating" or "Vacuum Plating." Looking through the long list of "Platers" of all types might reveal some with plastic vacuum-plating capabilities.

A phone call to the purchasing agent of a "custom" plastic injection-molding company listed in the Yellow Pages may lead you to a vacuum plater. Plastic molding companies send items out for gilding and brightwork effects as a service to their customers. Once you've found a plater, show them this article so that they understand what you want.

● **How much does it cost?** The price of this service depends on many factors, but \$10.00 to \$30.00 is a target to shoot for when shopping around. Always consider the priorities of the plating company; if they have a tight production schedule and a low profit margin, an individual dropping in with a small job might disrupt their delicate balance and they may charge more.

On the other hand, work loads vary considerably and you may discover that your work would be welcome two weeks from now when a current production run is over. Being flexible and willing to work with the plater might get you a better price.

The cost of a plating job is mostly a setup charge; the amount of plastic processed per setup has little effect on the price. Plating several models costs little or no more than one model. For instance, you might be charged \$25.00 to plate your 1/48 scale B-25, but if you brought in five B-25s masked, tabbed, and ready to go, the total cost might be only \$35.00. Now each model costs \$7.00 instead of \$25.00. This makes plating models a good club project.

● **How long do I have to wait for my model to be plated?** If you're lucky, the plater may not be busy and you could get overnight service. However, your job may have to sit on the sidelines waiting for a gap between production batches, and that could take a week or more. Ideally, the plater is a nice guy who understands your problems, and wants to

help all he can. But reality is a notch or two down from this ideal. Try to involve him in your enthusiasm for your hobby; show him some of your work or offer to build him a model of his favorite car, truck, or plane. "Greasing the skids" may get your job done a little quicker.

● **How thick is the plating?** The plating is only .0003" thick, no thicker than paint applied with an airbrush. The lacquer pre-spray is actually thicker than the plating. Keep in mind that the plating visually magnifies details such as panel lines, warps, sinkholes, and rough surfaces. The masking procedure described in the article prevents large solid color areas from having the additional thickness of the plating underneath that might diminish surface detail.

● **Is aluminum the only color available?** Aluminum seems to be the only metal commonly vacuum-plated on plastic. Gold, brass, copper, bronze, chrome, and other color effects are achieved with tinted oversprayed films.

● **Is it possible to apply paint and decals over the metal plate?** Yes, any kind of touch-up is possible and decals can be applied normally with no problems. Al Onken tells me he has several shades of aluminum paint which he lightly dusts onto panel areas for weathering and to make some panels look like they are made from duller magnesium or stained titanium. He also uses these to touch up minor defects. The upper forward fuselage of Al's B-29 wasn't completely plated and was touched up with aluminum paint.

Treat the plated surface as you would a spotlessly clean bare plastic surface. A light overspray of aluminum paint can be used to create oil streaks and exhaust stains.

(I wonder who will be the first to completely aluminum plate an aircraft model, paint over the plating, and then chip the paint off in the high-wear areas.)

● **Can the plating be toned?** I was curious to know if buffing the aluminum would brighten some panels. Al says the process is too tricky to recommend, but you might like to experiment with small buffing wheels, jeweler's rouge, and so forth. Al prefers applying a gloss

overspray, but this doesn't look right on model aircraft.

If you want a mirrorlike, chrome surface, ask the plater to do this for you; this is the usual way he completes the plating process. Some time ago, Al had a model of a stainless steel tank trailer plated this way and to say it was a standout is understatement.

It's possible to rub a dry, paint-stained cloth on the plated surface so that the color lodges in grooves and depressions. This gives tremendous depth to small, intricate items like landing gear and other bright machinery.

● **Does the plating stick only to styrene?** Vacuum plating sticks to anything that has lacquer pre-spray applied to it. This is good news for modelers who scratchbuild or extensively modify their models using lots of filler.

● **Will the plating wear off or tarnish?** It's too early to tell what the long-term effects of exposing a plated model to normal environmental contamination, oxidation, and handling will be. With our extensive handling and a few minor bumps, the two models in the photos haven't shown any wear or deterioration of the plated or painted surfaces. It seems that the unprotected plated surface is every bit as durable as a normally airbrushed surface. This goes for fingerprints, too. If you normally use gloves to handle your completed models, continue to do so with plated models. If not, don't worry. We didn't take any special handling precautions when we photographed the models and the only disaster was a detached antenna wire.

As for tarnishing, aluminum is not like silver. Oxidation on real aircraft leaves a light film of white powder, and since this powder is microscopic, it would look real on a model too. It may take 5 to 10 years for this type of oxidation to be even slightly noticeable, and if you dust your models once or twice a year it might never be noticed.

In the long haul, waxes might help retain the original appearance just as full-size aircraft owners have found. I don't know what effect salt air or oceanside breezes may have on aluminum, but a clear overcoat should prevent extreme oxidation.

David Jones

the vacuum-plating chamber. Locate the tabs on the long edge of the part and attach them with tape or glue to painted sections or areas that will not need the plating, Fig. 2.

There is some heat and physical handling involved in the plating process so use the highest quality masking materials possible and make sure the edges are pressed down firmly, Fig. 3. Since the areas to be plated are pre-sprayed with a special low-solvent lacquer that promotes adhesion of the evaporated aluminum, plan the subassemblies so that they can receive complete

coverage during the spraying process.

Use lacquer-base paints on the painted areas; they're compatible with the plating pre-spray process. If you use oil-base enamels, make sure the painted areas are thoroughly masked to keep the lacquer pre-spray from reacting with the enamels. In short, plating must not overlap oil-base paints!

Some of the smaller plated parts that will be added during final assembly can be left on the kit sprue or mounted together on a special sprue of your own construction.

How the process works. The plater

clamps the tabs of the subassemblies to long racks in the vacuum-plating machine, Fig. 4. These racks rotate in ferris-wheel fashion, evenly distributing the aluminum on your plastic parts. The vacuum chamber is perhaps 5 to 6 feet in diameter and 8 feet long or more, Fig. 5. It has a bar or rod down the center that holds small strips of aluminum which are heated, atomizing the aluminum into a fine vapor. The vaporized aluminum sticks only to the surfaces that have been sprayed with lacquer. This "flashing" takes but a few seconds; most of the 15-minute pump-



Fig. 1. Monogram's 1/48 scale B-17G in subassembly stage. Painted areas will be masked over before being plated.

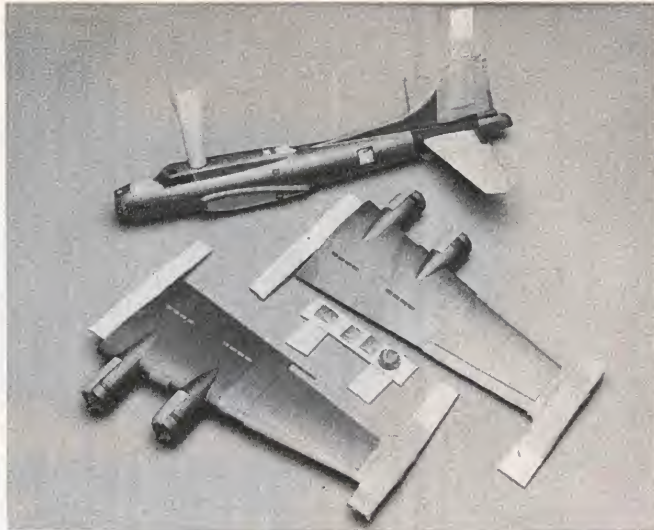
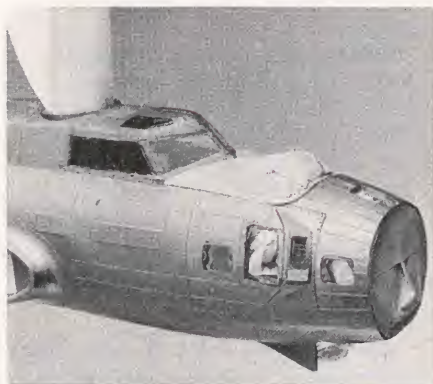


Fig. 2. Some ingenuity is required to mount the tabs on the parts. Sheet styrene strips are glued across wing mount tongues and sturdily taped over the painted wing tips. A styrene strip is taped to the painted tail and a coil of thin styrene is tack glued into top turret opening. Windows with liquid-masked frames are grouped on a homemade styrene strip sprue.



down time removes air from the chamber so that the metalizing process will work. After the vacuum is released, the chamber is opened, the rack slid out, and the parts removed.

Incidentally, the familiar "chrome" found on bumpers, grilles, wheels, and headlights in plastic car kits is produced this same way, but the high gloss effect is created by a gloss overspray.

You won't want this for most aircraft applications, so be sure to ask the plater to remove your job from the rack before they put on the gloss overspray.

The next time you make a bare-metal aircraft, try having it plated. When your friends ask how you got that realistic aluminum look you can tell them in all sincerity, "It's the real thing!"

FSM

Fig. 3. Cockpit windows are liquid masked and the frames cut out with a sharp hobby knife so that they get plated along with fuselage. After plating, the sheet styrene in the turret opening is removed with a careful twist. Note all openings are stuffed with masking tape to prevent plating the inside detail.

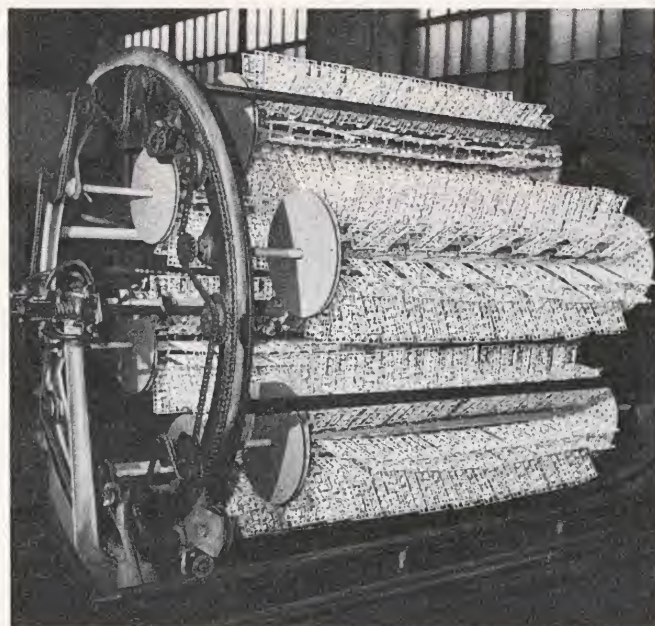


Fig. 4. Hundreds of sprues are clipped to the racks of a commercial vacuum plater. Chain drive rotates each rack in ferris-wheel fashion so that the plating covers all the parts.

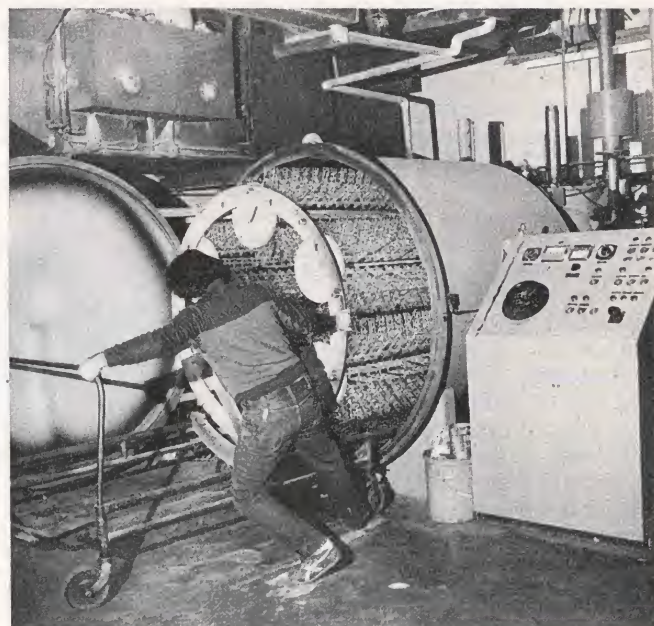


Fig. 5. The plater removes the rack from the vacuum chamber. The plating takes place in just a few seconds but it takes up to 15 minutes to pump air out of the chamber.



PORSCHE 356B

Building your first epoxy resin car kit

BY WAYNE E. MOYER

EPOXY RESIN KITS suggest something exotic — at least out of the ordinary. The 1/43 scale automobile model market has been dominated by cast-metal kits of varying quality, but now along comes epoxy resin.

Record is a small French company producing high-quality 1/43 scale kits.* These kits, though not unique, are unusual in that they are cast in epoxy resin. I don't know the exact process, but I do know that to someone used to white-metal castings, the resin parts are exceptionally clean and smooth — and incredibly detailed.

The kit (No. 53) is simple, with only a few parts, Fig. 1, and if you've never built an epoxy kit, this is a good one to start with. Somehow the casting process allows a great deal of detail (and unbelievable undercuts) in a single casting. The interior and chassis plate, Fig. 2, are cast as one piece — seats, dashboard, and instrument panel, and a hollow steering wheel shaft all molded in place. The door handles are cast with the body but there's an open space between the handle and door panel.

Preparing the parts. My body casting had thin flash in a couple of windows, but it was easily removed with an X-acto knife and sandpaper, Fig. 3. There was also a mold line on the rear pan that needed to come off, Fig. 4, but the epoxy castings sand so much easier than metal that no filing was necessary anywhere.

After all the parts were cleaned up, I washed them with mild detergent and

warm water, rinsed them thoroughly, and sprayed with Floquil's R9 Primer. If you don't have an airbrush, a spray can of auto body primer will work, though you'll need to be careful not to apply too much and obscure the small details. Model paints have no problem sticking to epoxy resin.

The primer coat revealed two areas on the body casting with small pinholes, Fig. 5, apparently from bubbles that formed during the curing process. I sprayed some primer in a jar and let it thicken, then brushed this over the pinholes to fill them, Fig. 6. After the primer had dried, I sanded these areas with 400-grit sandpaper, Fig. 7. The body was then primed again and gently wet sanded with 600-grit sandpaper, taking care not to sand through the primer. Since the castings were smooth, this light sanding was sufficient to produce a surface ready for the color

coats. The final sanding will be much more critical if you're using a spray can primer.

Putting paint on the Porsche. The inside of the body and both sides of the chassis plate/interior were sprayed flat black and allowed to dry. I applied a coat of semigloss clear to produce a "leather" luster to the upholstered seats, door panels, and headliner. When dry, I masked the entire inside of the body and taped it to a homemade coat hanger spray stand for the color coats, Fig. 8.

There weren't a lot of color choices for the 356. I've seen a metallic silver (hard to do in small scales), red, cream, and black — was there a light green, too? Anyway, a friend of mine had a red 356 for many years, so that's the color I chose. Testor No. 1103 Red is a good match and easy to find. (If you're really looking for authenticity, order some

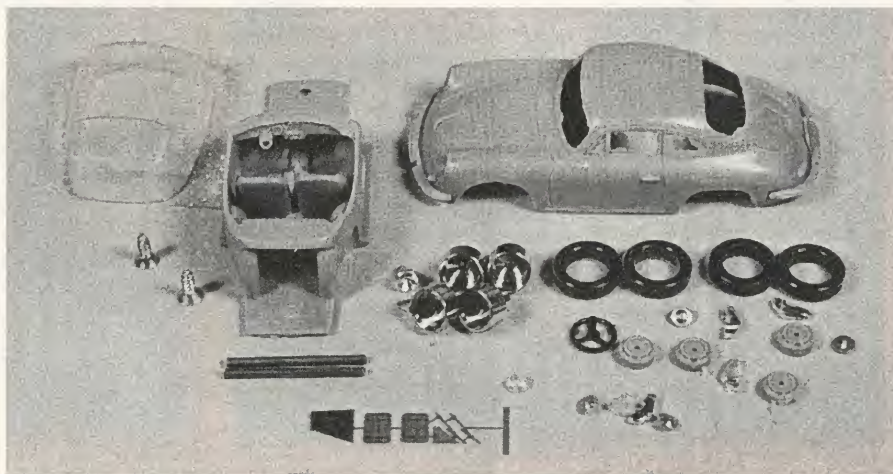


Fig. 1. There aren't many parts to Record's Porsche kit: the complex interior casting, body, wheels, vacuum-formed "glass," and a few trim pieces.

*Automotive and Aviation Miniatures, P. O. Box 61, 5 Drake Avenue, Silver Creek, NY 14136.

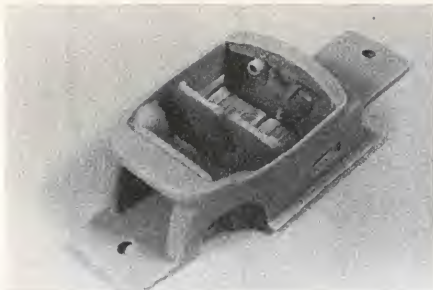


Fig. 2. The interior is cast in one piece. Note undercuts behind dashboard and rear seat — steering column is hollow, too.



Fig. 3. Flash was cut out of the window openings and the edges gently sanded with 320-grit sandpaper.

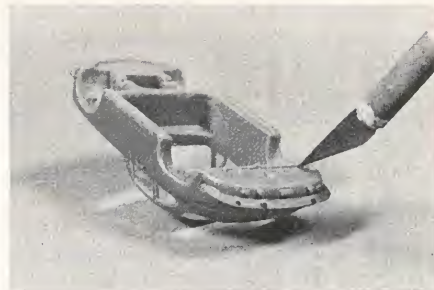


Fig. 4. One of the few mold lines goes across the rear pan, but it's easily removed with a knife and sandpaper.



Fig. 5. Though the surface looked smooth, the primer revealed these pinholes along the left door and rocker panel.



Fig. 6. The author used partially dry Floquil R9 Primer to fill the pinholes and set it aside to dry.



Fig. 7. The filled area was sanded down to the resin and a new coat of primer was applied to the model.



Fig. 8. After the interior was painted, it was installed and masked. Note the bent coat hanger serving as a spray stand.



Fig. 9. Plated wheels with cast inserts, plated hubcaps, and vinyl tires produce a realistic wheel assembly.

Fig. 10. An oversize piece of self-adhesive Bare-Metal Foil was buffed down onto the rocker panel and the excess trimmed away with a sharp knife.



touch-up paint from your local Porsche dealer.) I applied thin coats, building up the color evenly, then finished with a wet coat — not too wet though to keep it from running. Now the hard part; I put the body away in a dust-free place (even a box with a lid will do) and didn't touch it for several days.

Meanwhile, I built up the chassis, which is a joke since it is already done for you. This Porsche was taking the curves before the days of padded dashboards, so I painted the dash and instrument panel with the body color. The steering wheel has a wood rim with chrome spokes, while the instrument faces were black with green needles.

Porsche wheels were painted silver with chrome hubcaps; all I had to do was paint the spiders (center portion of the wheels) aluminum, give them a coat of clear gloss, and glue them into the wheel. All that was left was to add the tire and hubcap, Fig. 9.

Trim and details. When the body was thoroughly dry, I used Bare-Metal Foil* for the front and rear window trim, hood lift, side chrome, and bumpers, Fig. 10. I cut out a piece larger than the area to be covered, buffed it down with a soft cloth (or a cotton swab in tight areas), and lightly scored around the edges with a sharp X-acto

*Bare-Metal Foil Co., P. O. Box 82, Farmington, MI 48024.



The completed Record kit looks like a real Porsche — can you tell it's only 3½" long?

blade. Then I peeled off the excess and buffed down the foil.

The side windows, air scoops, and door handles were painted with Testor No. 1146 silver, then the entire body was coated with Future acrylic floor shine, which both protects the paint and seals the foil to the surface. Cyanoacrylates (super glues) work well on the resin parts.

Final assembly. I finished by gluing the shift lever and steering wheel to the interior, fitting the glass, gluing on the headlight buckets and bumper guards, and attaching the body to the chassis with the screws provided. The "glass" fits perfectly when cut into four separate pieces. Micro Kristal-Kleer works beautifully as an adhesive for

small clear parts; I used it to attach the clear plastic (fluted, yet!) headlight lenses, too.

The final touch was the photoetched air intake grilles and windshield wipers. I placed the parts on a piece of thick glass and carefully cut them out of the frame with a sharp X-acto knife, and glued them into place.

There you have it: an exceptionally easy to build, accurate (dimensionally as well as visually) Porsche 356B in 1/43 scale. Many of you may be reluctant to tackle a white-metal kit because it's "different," but if you build plastic kits, you'll feel right at home with epoxy kits. I'm delighted with the detail and realism of these little jewels. **FSM**



A BRIEF HISTORY OF PORSCHE

Upon leaving Daimler-Benz in 1931 Dr. Ferdinand Porsche established his own independent design consultant firm, employing his son Ferry and other engineers. Business was good — Porsche designs were bought, built, and marketed by a number of small German automakers.

Porsche was selected to design a small, reliable car that could be produced in large numbers and that all Germans could afford — a "people's car," or Volkswagen. When war became imminent, Dr. Porsche went on to bigger things — literally! His Tiger tank was one of Germany's best and his Maus was the largest armored vehicle in the world in 1945.

These efforts, though, were not well received by the victorious Allies, and the immediate postwar years saw Dr. Porsche in a French prison and Ferry (after a short internment) and the rest of the design staff keeping a low profile in Grumd, Austria. There, Ferry completed Porsche design study number 356, a two-seat roadster with a tube-frame chassis, modified Volkswagen engine ahead of the rear wheels, many other Volkswagen components, and an aluminum body. Parts were acquired, body panels hand-formed, and the first Porsche, No. 356-1, was on the road in early 1948.

Apparently the car was, at best, squirrely. The VW engine and transaxle were turned around, so the rear suspension was now "leading arm." The 1.1 liter engine was reworked to provide about 40 horsepower, enough to propel the 1300-pound

car from 0 to 60 mph in slightly less than 18 seconds! It was no dragster, but apparently produced a lot of interest in car-hungry Europe. The 35 mpg efficiency didn't hurt either.

The prototype was sold, and the money was used to build a second 356, this one a coupe with a pressed-steel frame and the engine behind the transaxle, VW style. With high hopes that he might build as many as 500 356s, Ferry accumulated VW parts and began building Porsches at the rate of 5 per month. Two of the first coupes were entered in the 1951 Le Mans 24-Hours, and one easily won the 1100 cc class, starting a Porsche association with Le Mans that continues today.

The rear-engined 356 wasn't faster than the prototype (87 mph tops) but was so much fun to drive and so well built that Porsche couldn't turn them out fast enough. Porsche negotiated a return to its original location in Zuffenhausen and set up a "real" production line — only about 50 aluminum-bodied cars were built in Austria. The Zuffenhausen Porsches had steel bodies, upping the weight to 1800 pounds, so the engine was punched out to 1300 cc and a 1.5 liter version followed in 1951.

The 356A with unit-body construction was introduced in 1955, with five engine options ranging from 1.3 to 1.6 liters, and various stages of tune. Both coupe and roadster versions were offered, and for a short time, so was a lightweight Speedster that was an instant winner; it's still competitive in Sports Car Club of America racing! More and more Porsche parts replaced VW components, and the 356B followed in 1959. This was in turn replaced by the 356C (with disc brakes) in 1963. Production of the 356 tapered off as the 911 program picked up, and the last rolled out in 1965.

There were 150 times more 356s built — more than 76,000 — than Ferry Porsche had hoped, establishing Porsche as a manufacturer and a dominant power in sports car racing. Not bad for a collection of rearranged VW parts! **Wayne E. Moyer**

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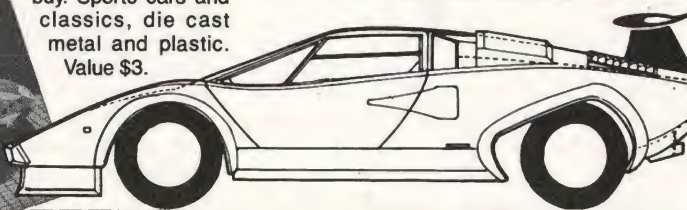
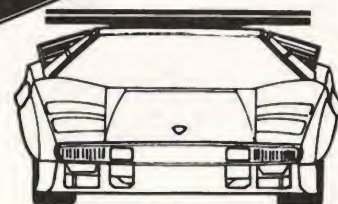
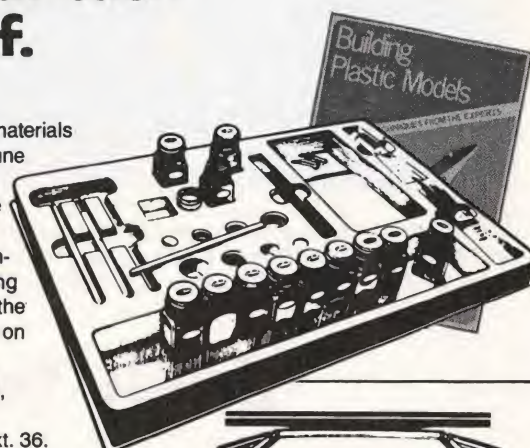
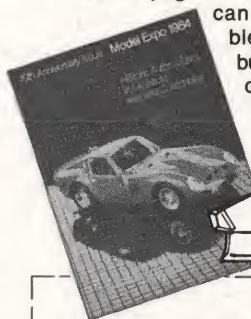
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Jeff's Series 77 90 mm 1876 cavalry captain and Wisconsin Dells cowboy are already fine examples of modeling, but the bases (spindle stock, left, stepped oak blocks, right) complement the figures for added eye appeal.

Basic bases

Inexpensive materials and simple techniques to accent prized models

BY JEFF BRODZIK

HAVING ATTENDED and entered several national and regional model shows and contests, it never ceases to amaze me how participants display their finished products. Unfortunately, many beautifully finished models and figures are displayed on poorly finished blocks of wood that closely resemble leftovers from a construction site.

Certainly, it's what's on top of the base that counts, but if you think of your completed project as a reflection of your interest and care as well as something that should be totally pleasing to the viewer's eye, then a poor job on your display base can only hurt what otherwise might be a superb piece of modeling. To lose "eye appeal" because of a poorly finished base is unnecessary, especially when professional results can be achieved by investing only a little extra time and effort.

I'm not going to fill page after page with woodworking tips and techniques that require thousands of dollars worth of special equipment and years of training. Instead, I'll suggest a few simple ideas on base work that any modeler with average skills can use — with a minimum of tools and expense. Keep in mind that this article isn't meant to be the "final word" on bases; it's intended to share some simple ideas with you, and encourage you to explore new areas on your own.

Craft bases. The simplest and most obvious place to start is with what are commonly called craft bases. These are pre-cut, pre-routed, decorative pieces of wood that can be found in most hobby and craft shops. They come in a wide assortment of shapes, sizes, and patterns, Fig. 1, and when finished properly, become attractive bases for dioramas, figures, or models. The materials I use to finish craft bases are shown in Fig. 2.

The wood used to make these bases has two different types of end grain, Fig. 3. The edges that are cut with the grain are smooth or "closed," but where the wood has been cut across the grain, the edges are porous or "open." When the wood is stained and finished later, these two edges can take on radically different appearances, ruining the finished product.

The solution to producing four equally attractive edges involves sanding the open-grained edges to close the grain. Commercially produced wood fillers are available but nothing produces the same results as several different grades of sandpaper and a fair amount of elbow grease. After a generous sanding, all of the edges of the base will be equally closed, will accept stain at the same rate, and will finish to the same degree of luster. If the base won't be covered by groundwork, the top also should receive a careful sanding.

Most craft bases are made from soft pine, so it's best to begin with either 80- or 100-grit sandpaper. Wherever possible, sand with the grain, but if you must sand across the grain, do it gently. Next re-sand with 220-grit sandpaper; this smooths the wood, closes the end grain, and prepares the base for staining.

All sanding should be done with sandpaper wrapped around a rigid block. My favorite tool for this is a blackboard eraser. The hard back is excellent for rough sanding, and the soft felt side is perfect for sanding curved surfaces, hard-to-reach grooves, and finishing. The sandpaper's life can be extended by occasionally tapping it on a workbench or hard surface to remove sanding dust that clogs the grit.

After sanding I rub the base with a damp rag; this causes the grain of the wood to rise slightly, appearing as a light layer of fuzz. After the base dries, I remove the fuzz by lightly sanding with 220-grit paper.

Stains. The best stain for our purposes is pigmented oil (wiping) stain. My favorites are manufactured by Formby.* They come in a wide range of colors which can be mixed if desired, and they make it easy to achieve professional results. I like the darker colors such as walnut and mahogany, but my choice of color is often influenced by the subject that will be mounted on the base.

Stains can be applied using a rag or brush. The brush is neater, but no matter how careful I am, the stain eventually find its way to my hands, so I recommend wearing gloves.

Wherever possible apply the stain with the grain, and unless you have a desire to color your hands the same

*Formby's, Inc., Olive Branch, MS 38654.



Fig. 1. Craft bases come in many sizes, shapes, and woods. They are ready to stain and finish.



Jim Zeske

Fig. 2. Craft bases can be finished using these materials. Sandpaper and steel wool smooth the surface of the wood.

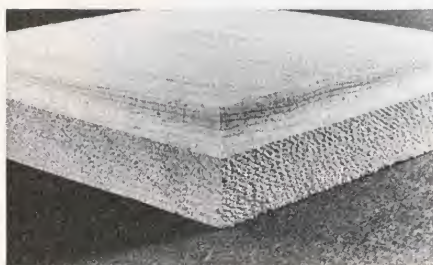


Fig. 3. The left edge is cut with the grain while the right is across the grain. Notice how rough the cross-grain edge is. The open pores can be closed by sanding.

color as your base, stain only one surface of the base at a time. Wipe off the stain with a soft rag after five or ten minutes; the longer the stain stays on the wood, the darker the color. Remember, if the color is too light after the first coat is wiped off, a second application will make it darker. It's not as easy to correct if it's too dark. To find out how fast the stain is absorbed, test the stain on the bottom of the base where mistakes aren't likely to show.

Protective finish. The two best fin-

ishes for bases are tung oil and polyurethane. Formby's Tung Oil Finish comes in both low gloss (satin) and high gloss. I have used it for years on everything from simple bases to furniture and I've never been disappointed in the results. I like the high gloss finish; it doesn't look artificial or plastic.

Put a few drops of tung oil on the palm of your hand or on a soft rag and rub it into a small area of the base. A little heat is generated as the oil is worked into the surface, turning it a slightly darker color. Allow the oil to dry overnight, then buff lightly with fine steel wool. Wipe the surface with a dry cloth and apply a second coat. When this dries, you will have a beautiful deep finish.

Polyurethane is a plastic polymer material which provides a hard, damage-resistant finish. Polyurethane can be applied with a brush and usually takes about 24 hours to dry. During that time the work piece must be kept away from dust and airborne debris that could become imbedded in the surface, ruining the finish.

Different manufacturers produce var-

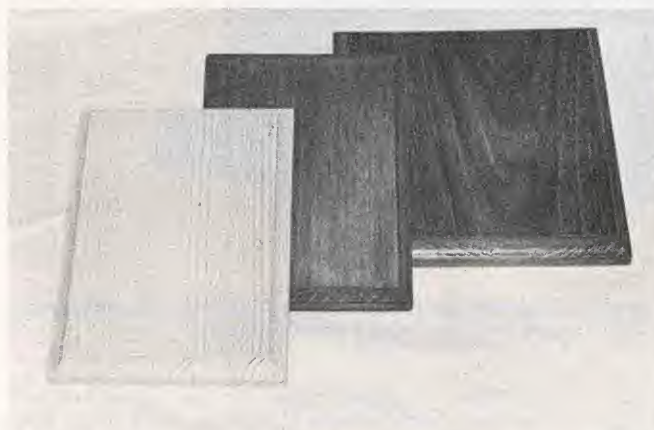
ious intensities of gloss and satin polyurethane finishes; one company's idea of a satin finish may be closer to another company's gloss. When in doubt, ask to see samples before buying. I like the satin finish manufactured by Behr* which produces a slightly glossy sheen. The three stages in finishing a base are shown in Fig. 4.

No matter which final finish you choose, give your completed piece of woodwork one loving touch — a coat of furniture wax. I'm not talking about the variety that smells like lemons and is advertised on television, but the paste finishing wax used for fine furniture. I like Minwax** furniture wax. Using furniture wax is easy; apply a thin, even coat of wax with a soft rag, let it dry thoroughly (10-15 minutes), then buff it with a clean cloth. When done correctly, the overall look is like that of hand-rubbed furniture; luxurious, yet remarkably easy to do.

If you plan to cover your base with Celluclay or any water-based sculptur-

*Behr Process Corp., Santa Ana, CA 92702.

**Minwax Co. Inc., Clifton, NJ 07014.



Jim Zeske

Fig. 4. (Left to right) An unfinished craft base, sanded and stained, and finished with tung oil. Note the dramatic change in color and sheen of the base at each stage.

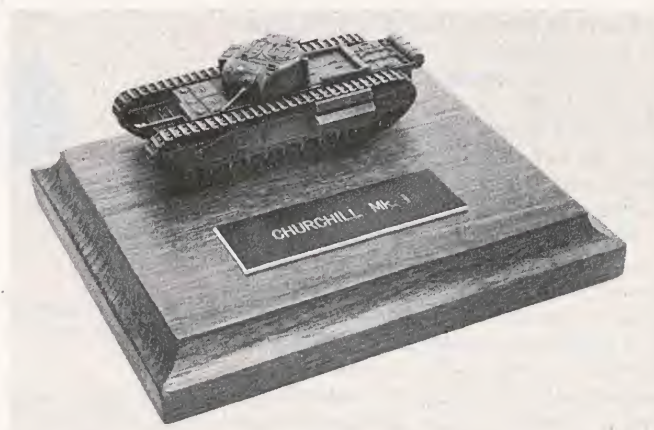
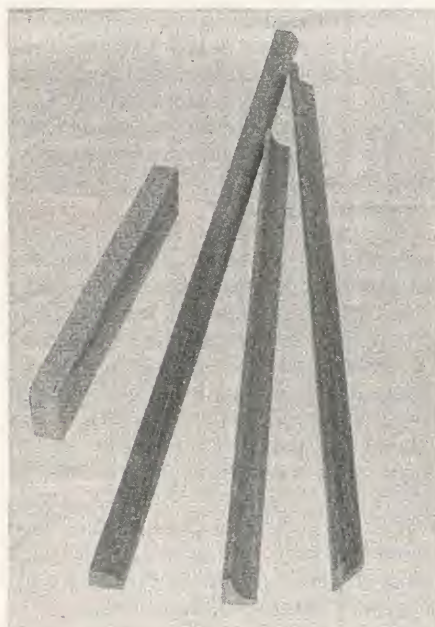


Fig. 5. The engraved plastic nameplate adds the finishing touch to this display of a weathered Hasegawa 1/72 scale Churchill Mk. 1 tank mounted on a finished craft base.



Jim Zeske

Fig. 6. A simple-to-make, but good-looking base can be produced with a piece of plywood, veneer, and white glue.



Jim Zeske

Fig. 8. (Left to right) Rectangle, half-round, cove, and corner oak molding can be added to the edges of a base.

ing material, thoroughly seal both the top and bottom of the base with a coat of polyurethane. If you don't, the wood will quickly absorb the water from the material and, just as quickly, warp. Similarly, never wax an area which will be covered with these materials since wax will prevent them from adhering to the base.

Plywood. Perhaps the easiest and cheapest material available for making bases is plywood. It comes in many thicknesses and looks terrific once properly edged with veneers, Fig. 6. After the plywood is cut to the correct size, the edges should be sanded to remove rough spots. Veneer can be purchased from hardware stores or lumberyards in 1- or 2-inch-wide rolls usually 6 feet long. Oak, walnut, mahogany, and basswood veneers are the most common.



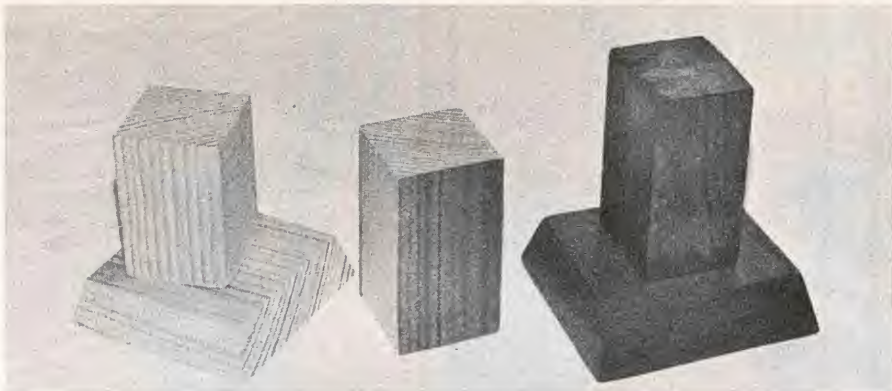
Fig. 7. A few pieces of plywood nailed together, angled inward, and then covered with veneer produce a unique base for "Cooky Don't Forget His Friends."



Fig. 9. Two pieces of oak glued together make this stepped base for the modern-day cowboy in Jeff's "Fort Dells" vignette using a Series 77 90 mm figure.

To apply veneer, start with a strip that is slightly longer than one side of the base; this allows for any movement while gluing. Brush a smooth layer of white or yellow woodworking glue on the edge of the base and lay the veneer

in place. If the veneer bubbles or rolls away from the edge, hold it in place with a block of wood or clamp until the glue dries. Repeat this process for the remaining sides and trim off the excess veneer. Since veneers can bend around



Jim Zeske

Fig. 10. These pedestal bases are made from pine blocks. To achieve a hardwood finish, veneer is glued to each face and the blocks are nailed or cemented together.

corners without breaking, it's possible to use it for circular and oval bases.

I've found that a model displayed on a base that sits higher than others around it often catches the viewer's eye. Laminating several pieces of plywood produces a base that elevates the model, breaking the monotony of a one-level display. Beveling the edges of the base also directs the viewer's eye toward the subject matter, Fig. 7.

Molding. Another simple yet attractive base can be made by edging a plywood square with molding. This material comes in a wide variety of shapes and sizes, Fig. 8, and can turn an ordinary block of plywood into what appears to be a beautifully finished piece of expensive hardwood. Molding is usually made of oak and can be found at hardware stores or lumberyards. Shapes range from simple squares and rectangles to half-round, cove, and fancy "beaded" patterns.

Molding can be glued or nailed to one or more edges of the base. Both ends of each piece will have to be cut at a 45-degree angle if you want the molding to go all the way around the base. By varying the size and shape of the molding, a wide variety of attractive bases can be produced. Molding is usually sold by the inch, so buy the smallest length you can find to do the job.

Step and pedestal bases. Another simple method of elevating your model is to place it on a stepped or pedestal base, Fig. 9. Nail or glue together two squares of wood, one smaller than the other. I recommend solid wood over plywood for this type of base.

Figures can be displayed on small pedestals made from 2" x 2" hardwood blocks mounted on a small square of pine. Both pieces can be made from inexpensive wood, then covered with veneer, giving the impression of a solid hardwood base, Fig. 10. Molding can be added to the base of the pedestal as well.

Self-standing pedestal bases can be



Jim Zeske

Fig. 11. A piece of walnut turning stock cut to the desired height makes an attractive, self-standing, pedestal base.

made from hardwood turning stock available at most lumberyards, Fig. 11. Hardwoods can be cut to the desired length with a hand saw, but a few kind words to the lumberyard attendant may get the job done for you. Turning stock is also purchased by the inch, but the cost is reasonable considering there's almost no waste.

The unusual. Although the ideas discussed so far use a minimum of effort and tools, other simple sources of bases can be found by sharpening your "modeling eye" on your next trip to the hardware store or lumberyard. Decorative spindles, used to make stairway banisters and railings, can be cut into small sections and made into fancy pedestal bases, Fig. 12. Finished hardwood shelving materials can be cut into small squares and used as bases. I even know an artist who used the wooden top from an after shave bottle as a base for one of his figures!

Base bottoms. I always glue a piece of felt to the bottom of my finished bases. The felt not only serves a practical purpose of making them less likely to slip and slide, but also adds a finished look to the overall piece. Once again, a lot of eye appeal is gained at little cost.

Take that extra bit of time to turn out a finished base for your model or figure. The little effort involved can enhance your finished product, and you might even find that it's almost as much fun as modeling!

FSM



Meet Jeff Brodzik

Jeff is a graduate of the University of Wisconsin-Milwaukee with a master's degree in education and program development and design. He is married and teaches math and science in the Greendale, Wisconsin, school system.

Jeff's spare time is evenly divided between woodworking and modeling or, he reports, "making two grades of sawdust, coarse and fine." He is a member of IPMS/U. S. A. and vice-president of the Milwaukee Military Miniature Modelers. Jeff's models and figures have won both local and national IPMS awards, as well as placing in the annual Military Miniature Society of Illinois show.



Fig. 12. A finished section of banister spindle was used as the base for this 90 mm figure. Note the finished, professional look it lends to the project.

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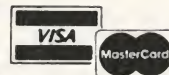
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Conducted by Paul Boyer



Getting white to cover. I'm painting the underside of Airfix's 1/48 scale EA-6B Prowler with Tamiya's gloss white (X-2) but I'm having trouble getting it to cover. It leaves brush marks and it won't stick in some areas no matter how many coats I apply. I tried washing the model in warm, soapy water, but it won't help. What can I do?

Mark Schicker

Although I'm still experimenting with Tamiya's new acrylic paints, I also found the X-2 white troublesome. I gather from your letter that you are hand brushing your model but I've airbrushed mine and had the paint "creep" away from some areas. It seems particularly sensitive to oil on the surface of the plastic. You might try wiping mineral spirits or rubber cement thinner over the trouble spots after washing them with soapy water. These solvents will loosen oils but won't affect the plastic.

My favorite white paint is Floquil's R11 Reefer White, but this can only be airbrushed. For hand brushing, I like Polly S PF11 White. Both of these colors dry flat and would need a gloss overspray on the Prowler.

Paul Boyer

Metal blackener. On page 40 of the book HINTS AND TIPS FOR PLASTIC MODELING, a product called Hobby Black is shown. I've tried to find it in many hobby stores to no avail. Where can I get it?

Rudolph A. Dipietro

Hobby Black metal blackener is sold by RAC Distributing Co., 6861 Northpoint Court, Troy, MI 48098. Hobby Black No. 1 produces a black-brown weathered look, while No. 2 gives a jet black appearance. A similar product is Blacken-It from A-West, P. O. Box 5746, San Bernardino, CA 92412.

Burr Angle

Orange stripes. I'm building Monogram's 1/32 scale P-51D Mustang and I have it painted cream and would like to have orange striping on it, about 1/8" wide. Are orange decal stripes available? Robert Naugle

Orange stripe decals are available from Virnex Industries, Inc., Route 1, Herwig Road, Reedsburg, WI 53959. Virnex has two different oranges, "safety" orange (a light orange, sheet No. 9164) and red-orange (sheet No. 9165). Several widths and colors are available. Microscale Decals, Krasel Industries, Inc., 919 Sunset Drive, Costa Mesa, CA 92627, has a solid-color orange sheet (No. TF-10, Federal Standard color FS 12246) that you can cut into strips.

P. B.

Locating Weld-On #3. I've had trouble finding a hobby shop in Vancouver, British Columbia, that stocks IPS Weld-On #3 plastic cement. Do you have any idea how I can get it?

Susan Lee

Weld-On #3 is distributed by Industrial Polychemical Service, P. O. Box 471, Gardena, CA 90247. Have your dealer contact them. Also, try calling a plastic supply house in Vancouver.

P. B.



White glue threads. I have trouble with Elmer's Glue-All "threading" or leaving spider webbing behind as I apply it. I've tried cooling it, warming it, keeping the container upright, cussing — even buying a new bottle — but nothing helps. So, help!

Bill Hogan

Borden may have modified the formula of Elmer's Glue-All recently because I have never had a threading problem until my most recent bottle. First, try thinning the bottle with one or two teaspoonfuls of water. Elmer's Glue-All and similar white glues are based on polyvinyl acetate, a water-soluble compound designed to bond porous surfaces like paper and wood.

Also, try adding a few drops of liquid dishwashing detergent to the bottle of glue and stirring. This acts as a wetting agent, breaking down the surface tension of the glue, which is causing the threading.

P. B.

Addresses. I'd like to get a catalog for the AMT 3-in-1 kits. Do you have an address I can write?

José Olivieri

AMT was bought by the Ertl Company a few years ago and has released some of the old AMT 3-in-1 kits. Write the Ertl Company, Highways 136 and 20, Dyersville, IA 52040.

P. B.

I enjoyed Richard Wehr's article "Converting a 1/35 scale LVT(A)5 to an LVT(R)-X1 recovery vehicle" (January/February 1984 FSM), and I would like to try a similar conversion using the Nitto kit. My problem is finding the kits. Where can I get them?

Warren O. Harry

I'm not sure that the LVT(A)5 kit (No. 94-1000) is still available, but try contacting Island Modelcraft Supply, Inc., 855 South Hoffman Lane, Central Islip, NY 11722. The phone number is (516) 234-5090. Island should carry most of the available Nitto kits.

P. B.

Where are they? I am trying to complete a collection of Soviet fighter aircraft. Is there a 1/72 scale kit of the Su-15 Flagon available? Also, where can I obtain a 1/72 scale Douglas A-3 Skywarrior or B-66 Destroyer? I believe Revell produced a 1/72 scale A-3 Skywarrior kit a long time ago; is it still on the market?

Robert Martinez

Good luck trying to fill some of your voids in a Soviet fighter collection in any scale. I attended the IPMS/U. S. A. national convention this past July in Atlanta, Georgia, and this same question about Soviet aircraft came up at the manufacturers' meeting. (This is where representatives of some of the major kit and accessory manufacturers, as well as publishers, answer questions from the modelers in attendance.) The answer was simply, "they don't sell," and that, for the manufacturers, is the name of the game. Apparently the Hasegawa 1/72 scale MiG-25 kit sold reasonably well since Viktor Belenko's September 1976 defection in a Foxbat was still fresh in the minds of aviation modelers, but most other Russian subjects have not made money for the modeling industry.

There is, however, a vacuum-molded kit of the Su-15 Flagon produced in the U. S. by Nova. It's available from Archer's Hobby World, P. O. Box 9809, Fountain Valley, CA 92708. The Revell A-3 Skywarrior you're thinking of was in 1/84 scale, a little too small for a 1/72 scale collection. It's not generally available, but you may find it through kit collectors. Monogram had a B-66 with a droppable bomb (remember?), but it was also smaller than 1/72 scale. Airmodel had a 1/72 vacuum-formed kit of the B-66, but it too is hard to find. It's likely you'll see a vacuum-formed A-3 in 1/72 scale soon.

P. B.

Israeli colors. The instructions in my 1/48 scale ESCI Kfir C.2 kit say to paint the model brown, green, and sand over gray. Can you tell me exactly what colors are used on this aircraft and recommend any paints?

Scott Day

Testor Model Master paints have all the colors you're looking for: FS 30219 for the brown, FS 33531 for sand, and FS 34227 for the green. The undersides could be painted in one of three colors: FS 35622 (duck-egg blue), FS 36622 (the same light gray used on U. S. A. F. aircraft undersides in Vietnam), or FS 36375 (Light Ghost Gray). More recently, Israeli Kfirs have received two-tone gray paint jobs using the Compass Ghost paint scheme of FS 36375 and FS 36320 (Dark Ghost Gray).

P. B.

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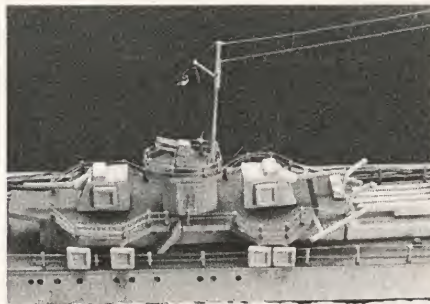
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Acrylic gel. I live in Australia and can't find the Grumbacher and Liquitex acrylic gel mentioned in Dennis Moore's article "Modeling water with artist's acrylic gel" (January/February 1984 FSM). Would you please provide me with their addresses?

Tim Vickridge

Sure, Tim. Liquitex, Binney and Smith Inc., Easton, PA 18042, and M. Grumbacher, Inc., 460 West 34th Street, New York, NY 10001.

Dennis Moore



Ship details. How does Dennis Moore make those splendid railings on his ship models? This has frustrated me for years, mainly in getting them thin enough to be near scale.

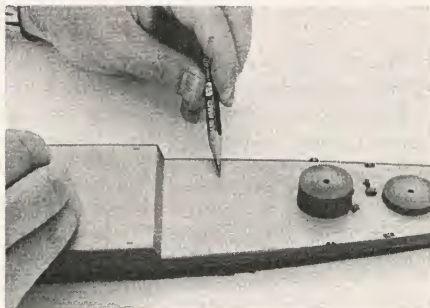
Robert Munro

I would like to duplicate ship deck railings and mast rigging on battleships. Is it possible to purchase wood deck planking for 1/350 scale warships? Also, what company makes a detailed 1/350 model of the U. S. S. *New Jersey* or *Missouri*?

Bob Morris

Answering Mr. Munro's question first, I make my railings from HO detailing wire and clear stretched sprue. I also use clear stretched sprue for mast rigging. I'll have an article on building ship railings in a future issue of FSM.

I don't think deck planking is available in wood for 1/350 scale. However, you can easily get the effect of the cracks between the planks by grazing the raised surface



plank detail with the side of a soft lead pencil. Although it looks shiny after it is applied, it will look just right after a coat of Micro Flat which also seals the pencil on the paint.

As far as the detailed 1/350 battleships go, you're in luck. Coming this year are three kits of the U. S. S. *New Jersey*; both Revell and Tamiya are making a kit of the current refit, while Otaki is doing a World War Two version. Since these kits haven't been released, I can't comment on which would be the most detailed.

D. M.

Paint thinner. Is it possible to purchase large volumes of paint thinner that is compatible with Testor enamel? *Don Martin*

I like using the Testor Model Master line when I airbrush my models. Can I buy thinner in larger quantities than those that Testor sells? *Chris Bowcock*

Mineral spirits (available in pints, quarts, and gallons at hardware stores) will work with Testor paints. Because each manufacturer's thinner may be different, you should experiment to determine the proper thinning ratios and air pressure settings for airbrushing. *P. B.*

World War One tanks. In Sheperd Paine's books, *HOW TO BUILD DIORAMAS AND MODELING TANKS AND MILITARY VEHICLES*, there are photos of scratchbuilt WWI tanks. Are there any kits of armor of this era?

Ross Whitney

I know of only three WWI tank kits: Airfix's 1/76 scale British Mk. 1 (No. 01315-2), Matchbox's Renault FT M17 (kit No. PK-176 also includes a Char B1 bis), and the Touro 1/35 scale German A7V (No. 101). Touro was one of those one-kit companies — its 1/48 scale Macchi 202 aircraft kit never materialized. There may be some vacuum-formed kits of WWI armor. Can anybody add to this list? *P. B.*

World War One aircraft. My favorite subject is WWI aircraft but I find 1/72 scale too small to include the detail I would like in my models. Are there any 1/48 scale WWI aircraft available? *Kevin Riant*

Yes, there were 1/48 scale kits of WWI aircraft, but few are still available. A large selection was brought out by Aurora and many of these were reissued under the K&B label. Both the Aurora and K&B box kits are now collector items and many of them command high prices. Monogram reissued some of the Aurora kits in the late '70s but even these are becoming scarce. Renwal had a few of its "Aero-skin" series in 1/48 scale as well. AMT produced a 1/48 scale D. H. 4. *P. B.*

HO scale aircraft. I would like to add an airport to my HO scale model railroad. Are there any aircraft kits available in this scale? *Tom Walkey*

AHM produced a limited number of classic airplanes in HO scale and these can still be found in some hobby shops. The selection is limited, though; famous aircraft like the P-26, Lockheed Vega, P-38, Ju-87 Stuka, and F-4 Phantom II are some of them.

If you're interested in a modern-day airport, your best bet would be the jetliners produced by Nitto in 1/100 scale. Even though this is a smaller scale (HO is 1/87), you might be surprised at the size of these models and adding even a corner of an airport to accommodate a 1/100 scale Boeing 747 is going to take up quite a chunk of space. If you can't find them at your local hobby shop, write ATP, Inc., 3014 Abelia Court, San Jose, CA 95121, or Empire Pacific, Ltd., 10805 East Artesia Boulevard, Cerritos, CA 90701. *P. B.*

FSM



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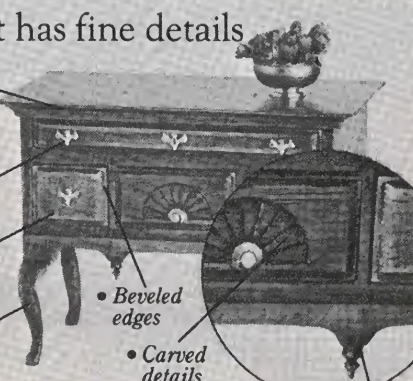
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To emphasize the Handley-Page Heyford's unique construction I set up the cleanest possible scene. However, with a plain base the model looked too much like a model, so I "pulled the background away" from the viewer by placing SkyWave 1/700 scale hangars and barracks behind the plane. Forcing the perspective in the photo with different scales is usually possible only in large scenes, and then only when the larger scale is widely separated from the smaller one. Technically, this scene was relatively easy to photograph, since I only needed to hold the focus on the plane and the buildings.



In "Engine Test" the props on the far Stirling were spun using a can of compressed gas from Falcon Industries. This ingenious device has an accessory tube to aim the spray. The prop has to spin at just the right speed: Too fast and it disappears; too slow and it won't complete one revolution while the camera shutter is open, leaving dark bands where it started and stopped. I used model vehicles to block out several real cars in the background, and if you look closely you can see a full-size Ford LTD roof just under the distant plane.



The Stirling's "skyscraper" look resulted from raising the angle of attack of the wing for takeoff by lengthening the landing gear. Even without the long gear the plane was enormous, and the object of this photo was to capture that huge, gawky look. The figure in the shade provides a touch of life and activity. The Austin Lorry on the left is kitbashed: The cab is from an RAF fire engine, the frame and low body were scratchbuilt. The Airfix AEC Matador (right of center) was carefully positioned to block out the roof of a 1979 Lincoln.

I backdated this Lindberg 1/48 scale Me 262 to an early prototype version. Here again the field is uncluttered to show off the form of the plane to best advantage. The Opel Blitz truck is not available in 1/48 scale, so I modified a Bandai Maultier half-track. The section of wheel on the left is a Bandai staff car, and the wing going off the edge of the photo is a Feisler Storch.

Realistic model photography with airfield dioramas

A gallery of World War Two photos taken just last year

BY VIC ROSEMAN

FOR MOST MODELERS, the model itself is the finished product or "end result," but not for me. A few years ago I was faced with a choice: I either had to stop building models altogether or find a new way to store them (they were beginning to take over my living space). My solution was to decide that my end result would be photographs of my models on realistic dioramas, allowing me to sell or give away all but my favorites (the models still overrun my living space, but at least I've been able to get them off my desk, floor, and bed).

Modular airfield dioramas. Having made the choice to collect photos instead of models, my next task was to come up with a means of photographing my models in pleasing and realistic settings. I decided to use a technique I'd developed for model railroad photos: The models are posed outdoors on dioramas set up in front of a full-size background. All the shots in this article were made this way.

The dioramas are made from identical 1' x 2' 1/4" Masonite hardboard panels. For shooting, they are arranged on top of a pair of 2' x 4' sheets of the same material, which in turn rest on 1" x 2" pine furring strips. These are in turn supported by four tripods, Fig. 1, although a pair of sawhorses could do the same job.

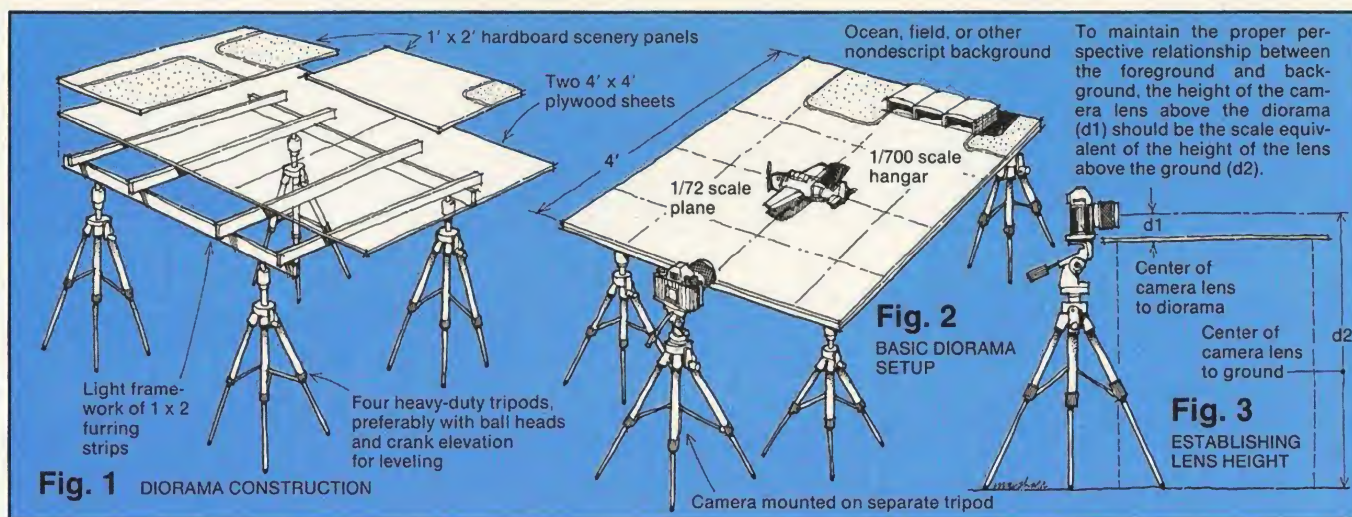
Each of the 1' x 2' panels is landscaped with part of an airfield. One panel has scribed and painted concrete sec-

tions to represent a landing strip, another is coated with "grass" (I use the electrostatic variety available in model train shops), and some have combinations of these surfaces. Because the panels are all the same size and shape, they are modular, which means I can arrange them in different configurations to vary the look of my photos.

For shooting, the platform and panels are set up in a wide open field at a farm, beach, park, or airfield, Fig. 2. The technique makes use of the perspective generated by having the full-size objects in the background very far away; any nearby background objects will dwarf the planes and spoil the effect.

Camera, planes, and props. The type of camera is not particularly important. I use a 35 mm single-lens reflex with through-the-lens viewing. What is important is that the camera be mounted on a tripod. To ensure the proper perspective relationship between the model foreground and the real background, position the lens so that its center is exactly the same *scale* distance above the diorama surface as its real distance above the ground the tripod is standing on, Fig. 3. Measure to make sure, because even a small error can ruin the impression of a real airfield that we're out to create.

Most of the planes in the photos are popular 1/72 scale kits with only a few changes from their out-of-the-box ap-



Meet Vic Roseman

Vic lives in New York City, where he is an instructor of fine arts. He holds a master's degree from Pratt Institute in New York, and he has also worked as a photographer for the New Jersey Historical Society in Newark, New Jersey.

Vic reports that he "has been involved in model building since he was a teenager." He's built both flying and solid model planes, as well as trains. Several of his articles have appeared in *MODEL RAILROADER* magazine, and he has written two books, one of them a soon-to-be-released volume on locomotives of the Central Railroad of New Jersey.

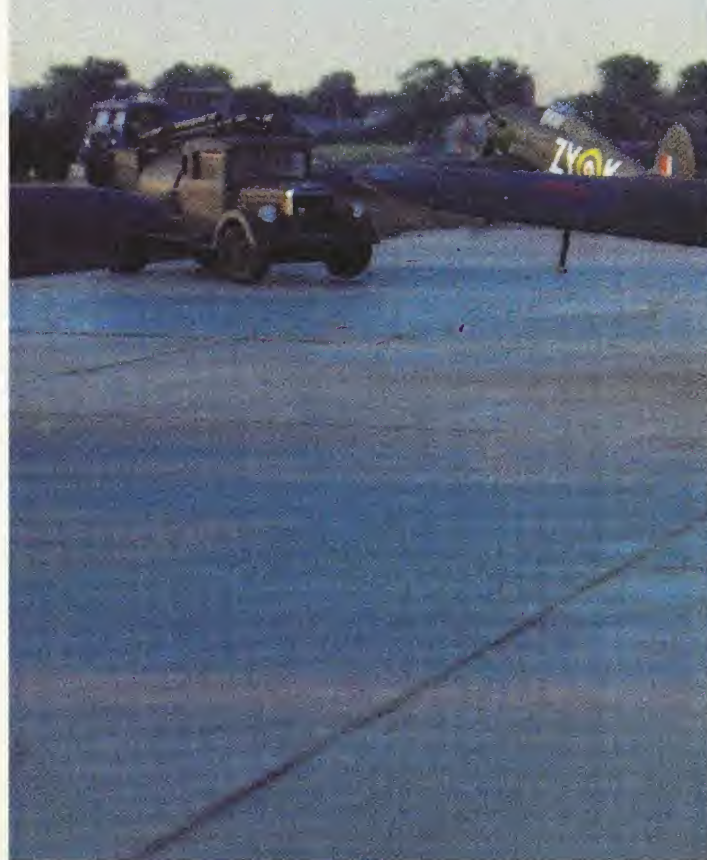
Vic told FSM that a lot of the credit for his aircraft photos goes to his assistants, Frank, Will, Kent, Andy, John, and Don.

pearance. Even more important than the planes from the point of view of achieving realism is the careful selection of the details and accessories arranged around the aircraft. Before I shoot (in fact, before I build the model!), I decide how I would like the photo to look: Will that B-17 be landing on a tropical island with palm trees? Or will it be one in a whole line of planes ready for takeoff from England? Would this be a good subject for a servicing scene? Deciding on the scene determines what vehicles will be used with the aircraft, and I research the vehicles every bit as carefully as the planes (sometimes more carefully!).

This modular diorama technique is not the only way — or even the best way — to take effective model photos, but these methods have worked for me. I'm always tickled to see a new model photo technique, and whenever I read about a new one that looks interesting I give it a try. I hope you'll give this one a try with your own models, especially if they're threatening to take over your house or apartment!

FSM

"Flight Line 247" was shot in late afternoon. Most photo books say to stop shooting at least an hour before sunset because the light becomes too red. That's true, but the shots that do come out have fantastic color. The fuel truck on the left contrasts with the planes and tells the viewer that the planes are being serviced. Its position is casual, not posed, as if it simply happened to be there while the photo was taken. The planes are 1/72 scale Hurricane IIs from Heller, and I backdated some of them to the I version for this scene. The markings include "HP" and "ZY" because 247 Squadron changed code letters at about the time they got their Hurricanes. According to an RAF mechanic who worked with 247, it was possible to see both sets of letters at the same time. I backdated the Albion fuel tanker from the cab and chassis of a Willys 1/64 scale Mercedes truck and an ARS tubing tank. Like all photos in this article, this one is a 35 mm Kodachrome slide.



Here I used 1/144 scale Lancasters in the background to force the perspective and enhance the illusion of depth. The foreground models are 1/72 scale.

Repeating the same forms is a technique from painting. The staff car barely visible at the left is a "Wanderer" in 1/87 scale from Brekina. The Preiser figures and tractor add life; without them the scene would be static (and dull). An important point about props is that you shouldn't use the same ones over and over. Some model railroad photographers put one automobile in every photo and call it "the photographer's car," but if you do this with planes, it looks as if all your photos were taken at the same airfield on the same day.



The Lancaster in the middle of the photo is the subject here, but the wing and shadow on the left establish the point of view. The vehicles and small clusters of figures help create a busy, but quiet, mood. The tan fuel truck is an Airfix AEC Matador. The "secret" in holding the focus on both the models and the distant background is in stopping the lens down to the smallest aperture (lens opening, or "f-stop"), and compensating with a long exposure, often several seconds.



Modeling the Soyuz spacecraft

Accurizing Revell's 1/96 scale Russian orbiter

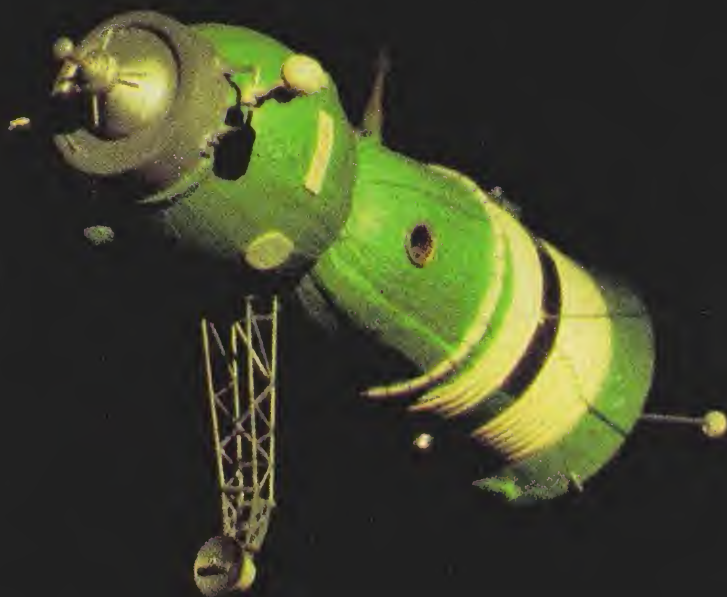
BY MIKE MACKOWSKI

THE SOYUZ SPACECRAFT has been the mainstay of the U.S.S.R.'s manned space program since the 1967 flight of Soyuz 1. Initially an orbital research vehicle for the Soviet manned lunar landing program, Soyuz has also served as a scientific research platform, a participant in the Apollo-Soyuz Test Project (ASTP), and most recently as a ferry vehicle to the Salyut space station.

Three sections make up the Soyuz spacecraft, Fig. 1. The orbital module is the somewhat spherical forward section that includes the docking apparatus and external hatch. The command module is the center section containing the couches where the cosmonauts sit during launch and reentry. The equipment module is the cylindrical aft section holding support and propulsion systems, and the solar arrays when used.

Several variants of the basic Soyuz have been flown by the Soviets; most of the differences involve changes in the number of crew members or in certain subsystems (different fuel tanks, solar arrays, docking mechanisms, and so forth). This article will describe the five most important variants: the early three-man version, used in Soyuz flights 1 through 9 for initial rendezvous tests; the ASTP version, sporting an androgynous docking system and different solar panels; the Salyut ferry, featuring a two-man crew but having no solar panels; the Progress automatic unmanned tanker/freighter vehicle; and the Soyuz-T, an updated, 3-man, solar-array-equipped version for the Salyut ferry missions.

Modeling Soyuz. There have been only three kits of the Soyuz spacecraft: the crude 1/144 version included with the Airfix Vostok launch vehicle, a rare 1/30 scale kit from the Soviet Union, and the Revell 1/96 scale kit of the 1975 Apollo-Soyuz mission. The Revell kit featured the same inaccurate Apollo spacecraft from its lunar landing kits, a docking module, and a Soyuz. The androgynous docking system is incorrectly shaped, too large, and poorly detailed, but can be corrected. The Soyuz itself is acceptable, although the detailing is a little crude. For instance, the antennas are much too beefy, the coolant loops around the propulsion



Mike modified his Revell model into a Soyuz ferry spacecraft. Note lack of solar array panels. The scratchbuilt antenna mast shows well in this simulated orbital view.

module are too prominent and should extend farther back, and the solid ring around the command module should really be a series of 44 small T-shaped antennas.

In modeling any of the Soyuz variants using the Revell kit, the basic spacecraft parts provided (the two fuselage halves plus the rear flange) can be used with modification. The coolant lines around the rear of the equipment module should run all the way to the rear flange as shown in the drawings. An umbilical cable should be added to connect the propulsion and orbital modules as shown in Fig. 2, and two additional windows are needed in the orbital module.

The outer surfaces of all versions feature a green, cloth-like thermal insulation blanket covering all of the two forward modules and parts of the propulsion module. To simulate this material, I painted this material, I painted crinkled aluminum foil, Fig. 3, with a mixture of 11 parts Pactra X-5 Leaf Green and 10 parts X-43 Turquoise, producing a flat jade-green. The equipment module was white around the radiators, with small patches of gold and bare metal, Fig. 4. The area in the rear face around the thrusters was bare metal, with green thermal material around the periphery.

To build an early Soyuz only the three main pieces of the spacecraft proper were used. I built a new set of antennas, along with "gull-wing" solar panels and a new docking mechanism. The antennas were made from stretched sprue, wire, bits of plastic, and items from my spare parts box. I prefer wire to sprue as it is less fragile and already has the desired metallic color. Many of these antennas are also used on the ferry and Progress variants, Fig. 5.

For the rendezvous radar tower, I laid the wire and sprue pieces on a copy of the drawings, Fig. 6, built up a pair of side frames, and connected them into a three-dimensional structure with additional wire and sprue pieces. The an-

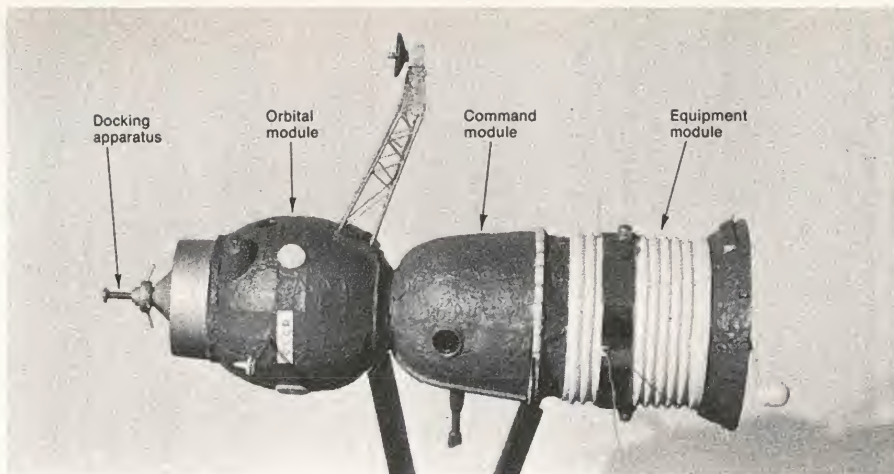


Fig. 1. The Soyuz spacecraft had three main components.

tenna assembly was built up separately and attached to the trusswork before the completed tower was put on the model.

The docking probe was built from a straight pin, metal tubing of various diameters, and bits of plastic. I made the fairing at the forward end of the orbital module from the flared end of a Krazy Glue case (not the glue container, but the white tube it was packaged in). A shorter length of this tube can be used for the docking collar in the Soyuz ferry version.

The solar panels were made from sheet plastic, with lightly scribed structural detail on one side and scribed solar cells on the opposite side. The cells should appear as a fine pattern of squares, painted a deep glossy metallic blue. Alternatively, I have found that exposed blank 35 mm slide film makes a nice simulated solar cell array. It's not exactly the right color (too black), but it scribes easily and has a nice glossy surface, eliminating one step of painting.

To get the gull-wing kinks in the array substrate, I scored and bent the plastic to the angles shown in the

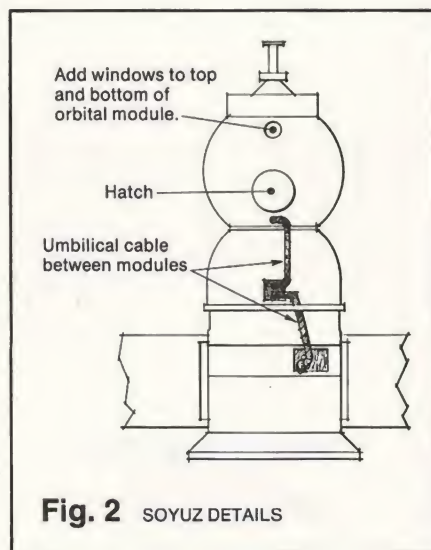


Fig. 2 SOYUZ DETAILS

drawings. Next, I ran a bead of Krazy Glue (or any cyanoacrylate adhesive) along the score. This permanently sets the kinks into each wing. I painted the panel structure flat white.

A balsa and putty Toroidal fuel tank, Fig. 7, was added to the flange on the kit to make the early Soyuz. The exact

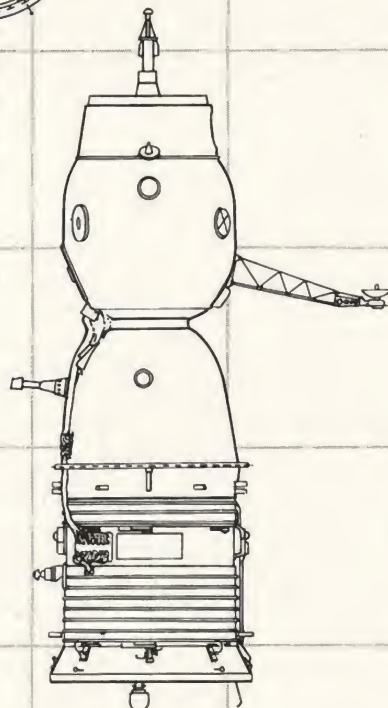
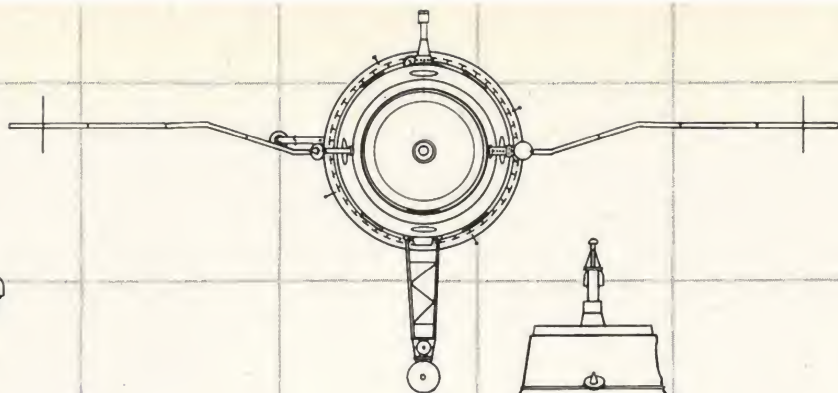
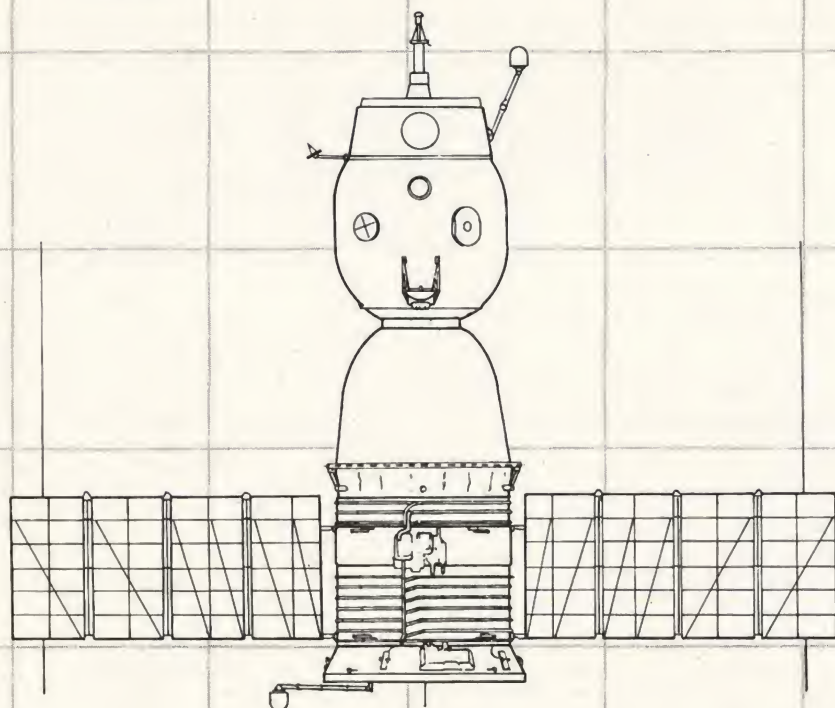


Fig. 3. Mike applied aluminum foil to simulate the thermal blanket that insulates the spacecraft.



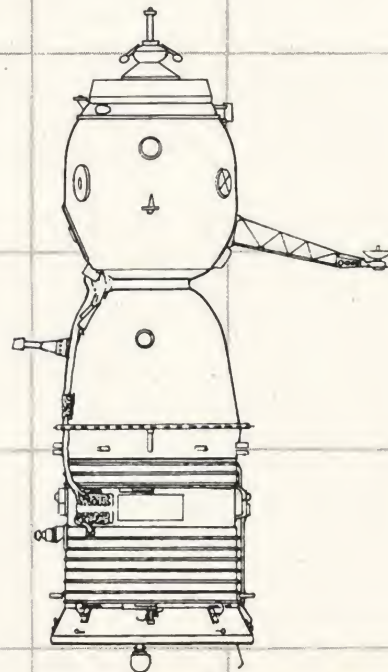
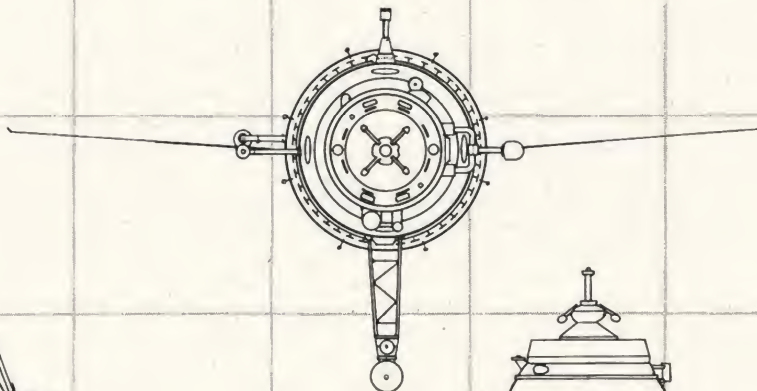
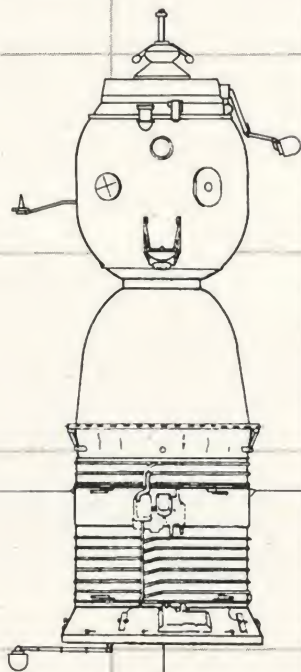
Fig. 4. The painted model. Note the umbilical cord and added windows. Radiator area has a few patches of bare metal and gold.

EARLY SOYUZ



PREPARED FOR
FINESCALE MODELER
BY
Mike Mackowski

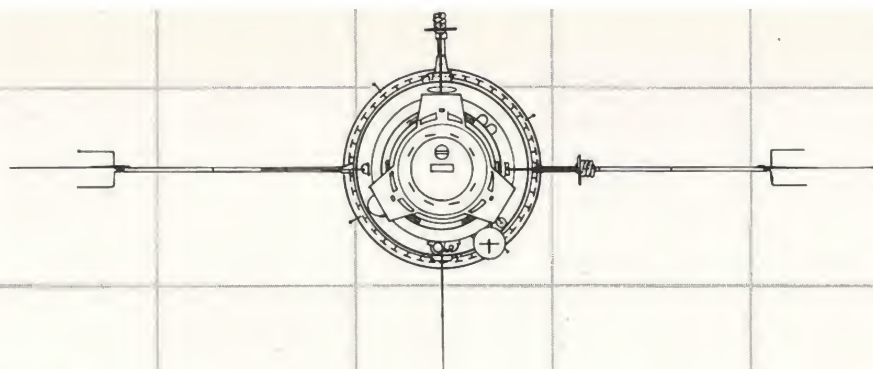
SOYUZ FERRY



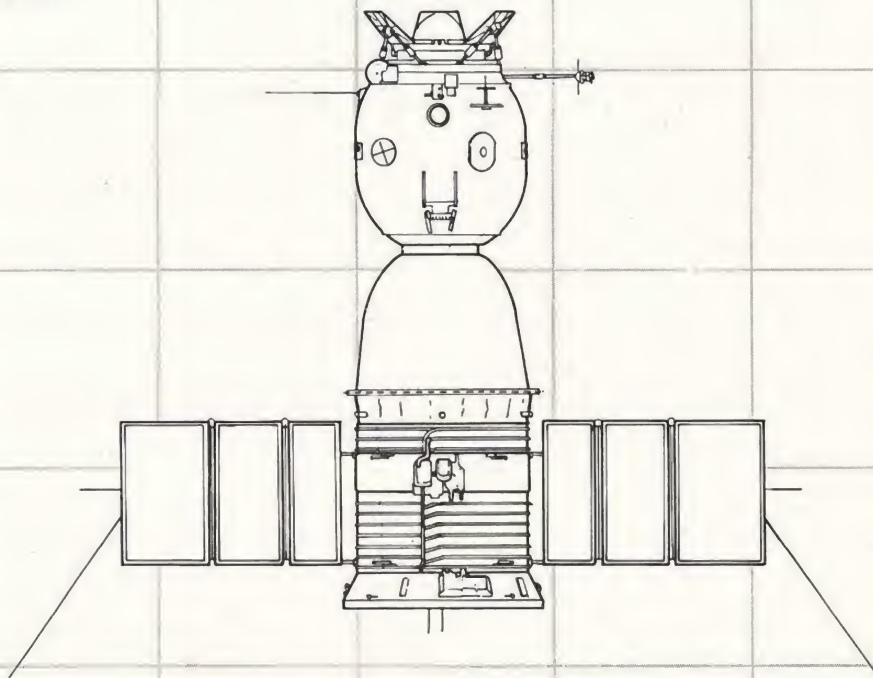
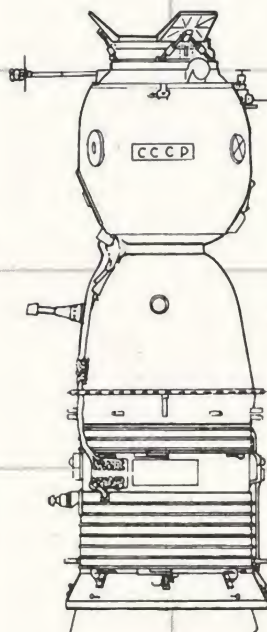
SOYUZ SPACECRAFT

Overall length:* 26.1' (7.94 m)
 Length of body: 22.9' (6.98 m)
 Maximum diameter: 8.92' (2.72 m)
 Array span:* 34.8' (10.6 m)
 Interior volume: 317.8⁻³ (9 m³)
 Crew: two or three
 Weight:* 15,100 lbs. (6850 kg)

*Data for Soyuz T version

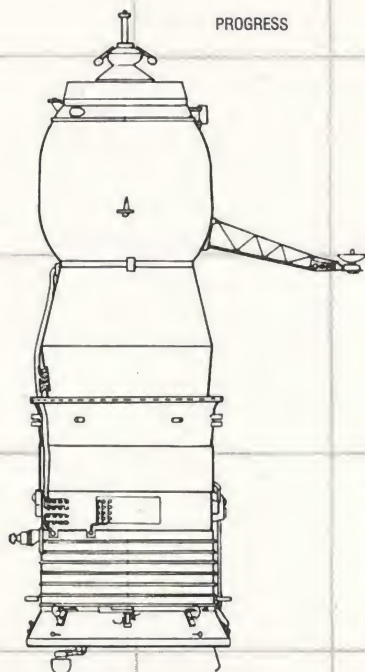


ASTP SOYUZ

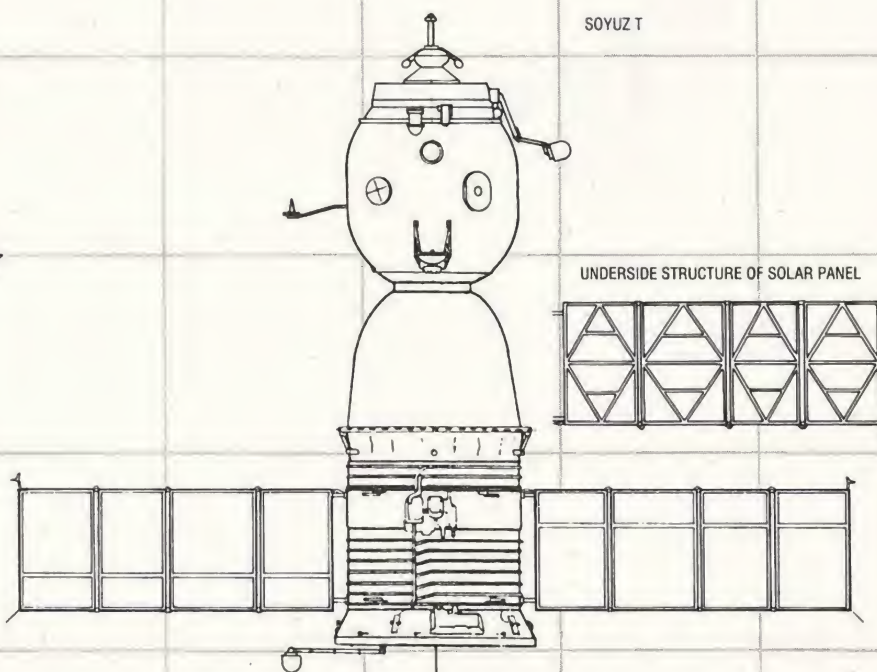


1/96 SCALE

PROGRESS



SOYUZ T





Meet Mike Mackowski

Mike is an electrical engineer at the McDonnell Douglas Astronautics Company in St. Louis, Missouri. His two favorite interests are modeling and space exploration, and every once in a while they unite in a project like the Soyuz model in this article.

Mike has been building models since he was a youngster and builds model spacecraft and USAF jets, particularly prototypes and experimentals. His models have won regional and national IPMS awards. Mike serves as editor of *Scale Spacecraft Newsletter* and *Crazed Plastic*, the quarterly magazine of the Gateway chapter of IPMS/U. S. A.

Mike's wife Maura is also an aviation fan and even his baby daughter Katie has been to a couple of air shows and IPMS meetings.



Now Revell's model is an accurate replica of a Soyuz ferry spacecraft. Note stretched sprue and wire antennas.

shape or a smooth finish was unimportant because it was covered with the green insulation blanket.

The ASTP version required corrections to the kit's docking petals and additional antennas. You might consider replacing all of the kit antennas with sprue or wire.

Salyut missions. Three versions of the manned Soyuz have been used for missions to the Salyut space stations.

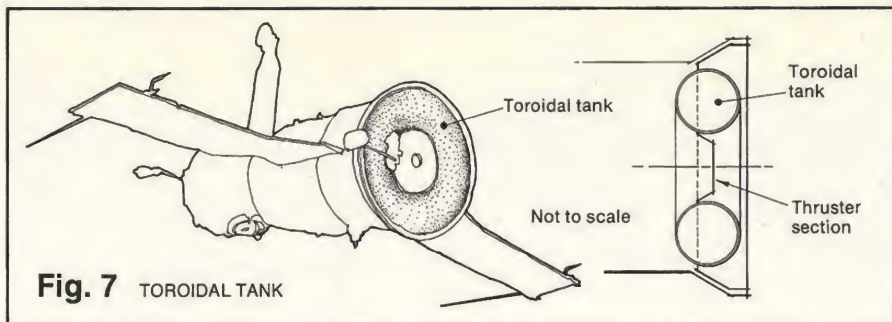
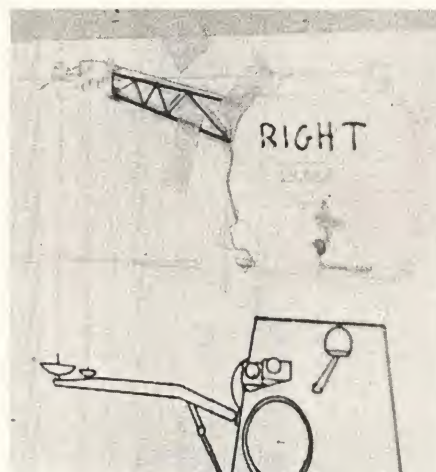


Fig. 5. Stretched sprue, wire, and bits of plastic made up the small antennas.

Fig. 6. Mike used the scale drawings to scratchbuild the antenna mast from bits of wire and stretched sprue.



Through early 1977 (Salyut 5 flights), the Soyuz ferry vehicles had solar panels and a new docking system. This docking mechanism allowed for crew transfer in addition to a simple mechanical connection of the vehicles.

The subject of the model in the photos is a later improved Soyuz ferry which was used through Soyuz 40 in 1981. The solar arrays were removed on this version because the ferry flights to the space station were short enough to be made on battery power alone. However, several flights had problems during the rendezvous phase, and the limited flight duration caused the crews to give up and return to Earth before they were able to dock with the Salyut.

Since then, the Soviets have upgraded the vehicle to the Soyuz-T variant ("T" for Transport) featuring a new computer system, a modified fuel system, and a new set of redesigned solar panels. The Soyuz-T has incorporated the solar arrays again to allow more flexible operations. So, except for the docking mechanisms and solar panels, all three ferry versions have a nearly identical external appearance.

Progress. In January 1978 the Soviets flew the first Progress spacecraft, an unmanned version of the Soyuz vehicle. The Progress can automatically rendezvous and dock with the Salyut space station to bring up fuel and supplies. The command module was replaced by a more angular refueling

module, while the forward module was retained as a pressurized cargo hold (without windows).

This version can easily be modeled by reshaping the Revell kit's command module with bits of plastic and putty. The overall size is about the same as a Soyuz, and the Progress features the same green thermal blanket and antenna complement as the late-model Soyuz-T craft. There are some changes to the aft equipment module, primarily in the arrangement of the coolant lines and radiator area. These changes, along with the lack of solar arrays, are evident in the drawings.

Little has been published on the external appearance of Soviet space hardware. I have been following their program for quite some time, and a few of the most useful publications are listed below. I hope I've been able to condense the information from these sources into a form useful to modelers who might want to work on this unusual subject.

FSM

REFERENCES

- *Apollo Soyuz Test Project Fact Sheet*, NASA Release No. 74-196.
- Froehlich, Walter, *Apollo Soyuz*, NASA Ep-109.
- Gatland, Kenneth, *The Illustrated Encyclopedia of Space Technology*, Harmony Books, New York.
- Johnson, Nicholas L., *Handbook of Soviet Manned Space Flight*, American Astronautical Society, San Diego.

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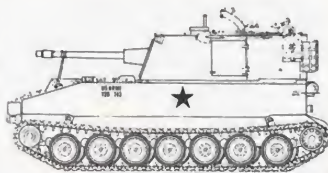
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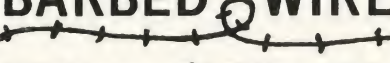
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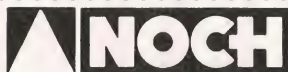


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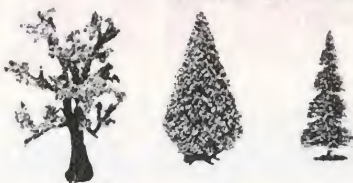
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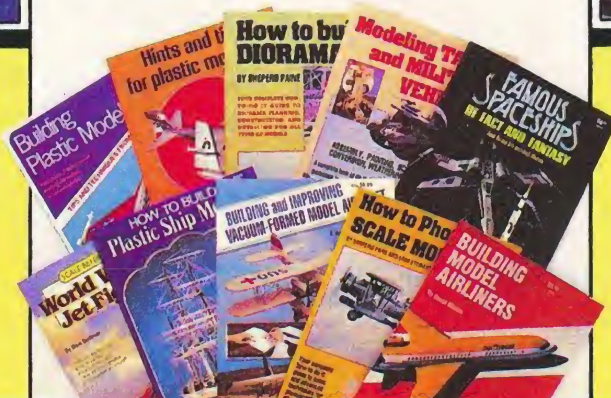
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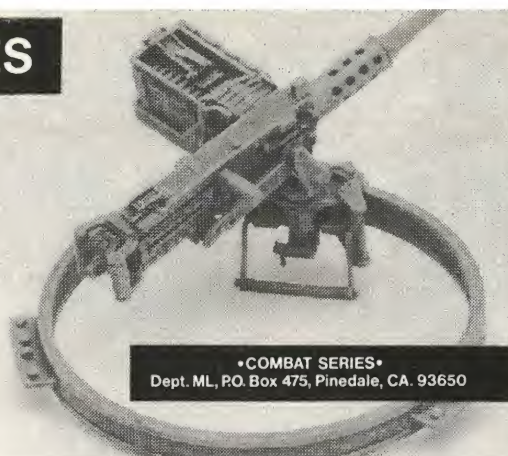
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The photos show many examples of airbrush art ranging from automotive graphics (Caiati's specialty) through model aircraft. The discussion of inks and paints suitable for airbrushing is especially interesting.

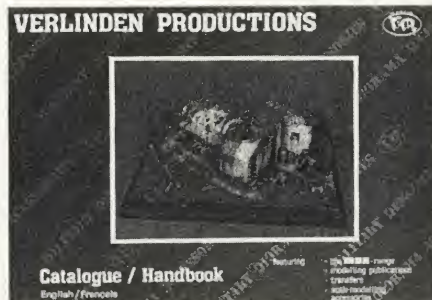
It is published by Tab Books, Inc., Blue Ridge Summit, PA 17214; the price is \$20.50.



The Italian Airships

Giuseppe Pesce, curator of the Historical Aeronautical Museum at Vigna di Valle, is the compiler of this 8 1/4" x 11", 109-page, soft-cover book that describes the 98 airships built in Italy from 1905 through 1931 and that contains 205 black-and-white photos showing most of these craft. The captions are in both Italian and English.

The book is published by Mucci Editore s.r.l., Via Emilia Est, 1527, 41100 Modena, Italy; the price is Lit (lira) 15,000.



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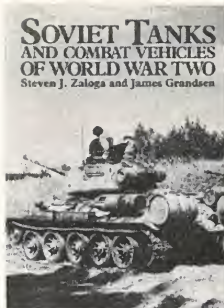
Francois Verlinden has published a 24-page, 8 1/4" x 11 1/4", horizontal-format, soft-cover catalog describing his firm's line of 1/35 scale modeling products and books. The products include cast resin kits for World War Two bunkers and ruined buildings, dry-transfer sheets containing markings for WWII German and American military vehicles, and accessories such as WWII military road signs. There are also sheets of dry-transfer markings for Israeli military vehicles from 1948 to the present and a resin kit for a ruined Middle Eastern building.

The text in French and English tells how to assemble, paint, and detail the resin kits and suggests uses for the accessories. There are 85 photos (27 in color), many of which show completed dioramas.

The catalog is available from Verlinden Productions, Berlaarsestraat, 36, B-2500, Lier, Belgium; the price is \$3.00 including surface postage, \$3.50 for airmail.

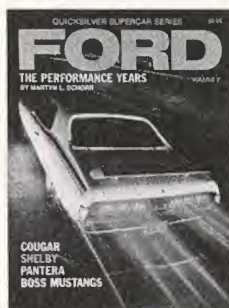
Soviet Tanks and Combat Vehicles of World War Two

The title of this book by Steven J. Zaloga and James Grandsen is somewhat misleading, because the volume is, in fact, a study of Imperial and Soviet Russian armored vehi-



cles of the entire period from about 1905 through 1945. The 240-page, 7" x 10", hard-cover book contains 312 black-and-white photos (most previously unpublished), 45 1/76 scale four-view drawings of armored vehicles, and many tables. The text focuses on the technical development of Russian armor and discusses all major Soviet tanks, armored cars, and self-propelled guns, as well as such curiosities as the aerosans, which were lightly armored snow sleds driven by pusher propellers.

The book is distributed in the U. S. by Stackpole Books, P. O. Box 1831, Cameron and Kelker Streets, Harrisburg, PA 17105; the price is \$19.95.



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It is published by Quicksilver Communications, Inc., and is distributed by Motorbooks International, P. O. Box 2, Osceola, WI 54020; the price is \$8.95.

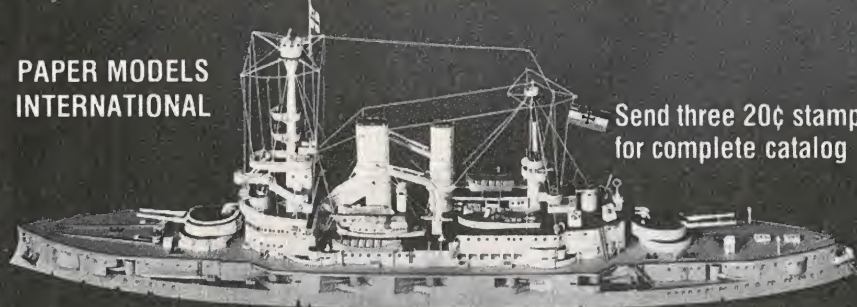


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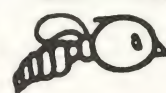
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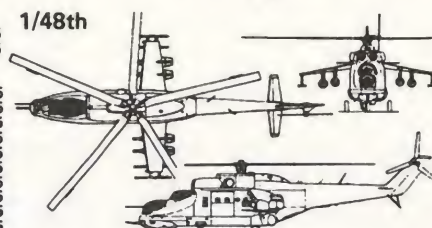
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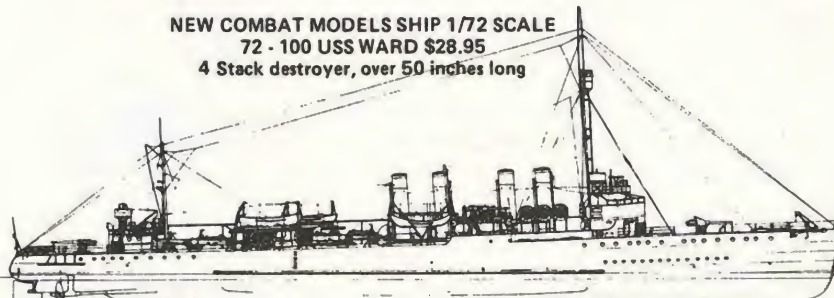
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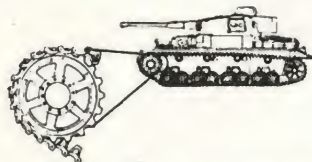
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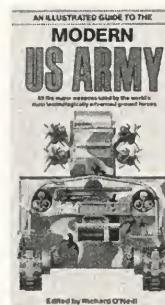


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The book is published in the U. S. by Spe-
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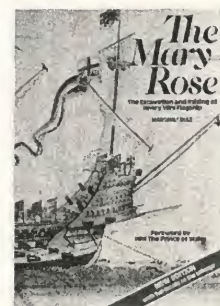


An Illustrated Guide to the Modern U. S. Army

A recent addition to Arco's Illustrated
Guide series, this 160-page, 4½" x 8¾", hard-
cover book edited by Richard O'Neill con-
tains 147 photos (nearly all in color) of
weapons and other equipment currently
used by the U. S. Army. There are specifica-
tions and descriptions of items ranging from
the M1911A1 .45-caliber pistol through the
Ground-Emplaced Mine-Scattering System
(GEMSS), a mine dispenser that can hold
800 4-pound mines.

There are brief discussions of the Army's
current doctrine, which relies heavily on a
presumed technological superiority over po-
tential enemies.

The book is published in the U. S. and
Canada by Arco Publishing, Inc., 215 Park
Avenue South, New York, NY 10003; the
price is \$9.95.



The Mary Rose

Built in 1509 and named after Henry
VIII's favorite sister, the *Mary Rose* was a
700-ton, 91-gun carrack that capsized and
sank in The Solent near Portsmouth, Eng-
land, on July 19, 1545.

The ship lay undisturbed until 1836 when
several cannons were recovered by divers,
but no other exploration took place until the
wreck was rediscovered in 1971 by a team of
marine archaeologists that included Marga-
ret Rule, the author of this 8" x 10½", 240-
page, hard-cover book with 158 photos (106
in color), and 53 drawings and paintings.

Rule tells how professional and amateur divers (including Prince Charles) first inspected the wreck, then removed artifacts, and finally raised the entire ship, which is now in No. 3 dock at the Royal Navy Base in Portsmouth. Studies of the ship and objects found with it have expanded our knowledge of sixteenth-century shipbuilding methods, military practices, and even sailors' diet and hygiene.

The book is published in the U. S. by Naval Institute Press, Annapolis, MD 21402; the price is \$18.95.



Sky Truck

Stephen Piercey's hobby is flying in and photographing piston-engine transport aircraft, particularly those that are still operating in the Caribbean or South America. This 128-page, 8 1/4" x 9", soft-cover book contains 120 excellent color photos taken from about 1976 through 1983 of such aircraft as the DC-3, DC-4, DC-6, DC-7, Lockheed 749, and even a civilian-operated B-17 (used to transport fresh meat in Bolivia). The text is limited to captions for each photo.

Published by Osprey Publishing Limited, the book is distributed in the U. S. by Motorbooks International; the price is \$11.95.



Lockheed U-2

Lockheed U-2 high-altitude reconnaissance aircraft were first manufactured in the mid-1950s and continue in service with the USAF and NASA. Jay Miller's 124-page, 8 1/2" x 11", soft-cover book contains 316 black-and-white photos, has 24 drawings of U-2 variants, and discusses every aspect of U-2 history. There are even sections on partial- and full-pressure suits and high-altitude cameras.

The author draws a number of interesting conclusions based on interviews with U-2 pilots. For example, he estimates that the plane's average maximum altitude is 75,100 feet and may exceed 81,000 feet under ideal conditions.

The book is published by Aerofax, Incorporated, P. O. Box 5337, Austin, TX 78763; the price is \$18.95.

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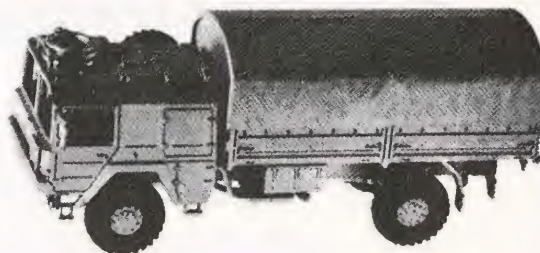
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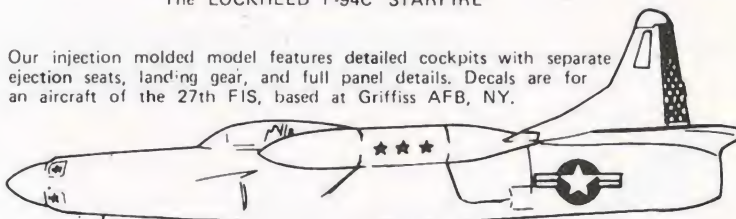
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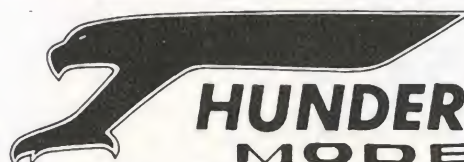
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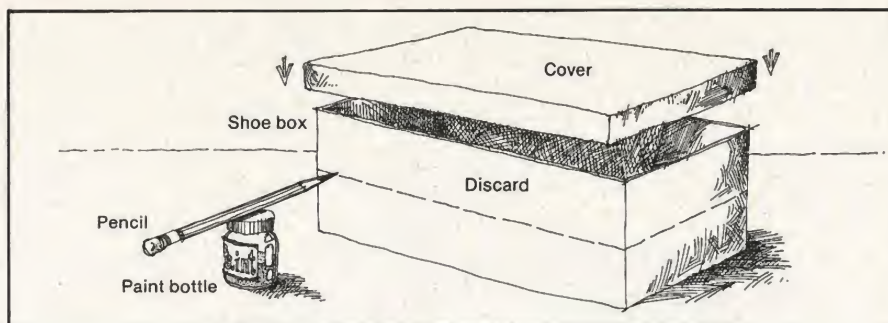


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Paint storage. I take an ordinary shoe box and, using a paint bottle as a guide, draw a line around the bottom with a pencil. I cut off the upper part and place my paints inside the box and use the original cover. I can stack nearly twice as many of these shortened boxes in the same space as standard boxes.

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For a drifted, blown-snow effect, place the "wintered" diorama base in a microwave oven for 15 to 30 seconds on full power. The results are a rippling, wavy surface that looks like drifted snow. Make sure you don't have any plastic models attached to the base when you do this, or they will take on a rippling, wavy appearance too!

David V. Chevalier

Frosted window panes. I use Krylon Workable Fixative (No. 1306) flat clear acrylic sprayed on clear sheet plastic to simulate frosted windows in winter-scene buildings. Krylon paints are available at art supply stores.

P. F. Eng

Tape handling. Do you find picking up small pieces of masking tape from the cutting surface tedious and annoying? Get a better grip on the problem this way: Butt two pieces of glass together and place a

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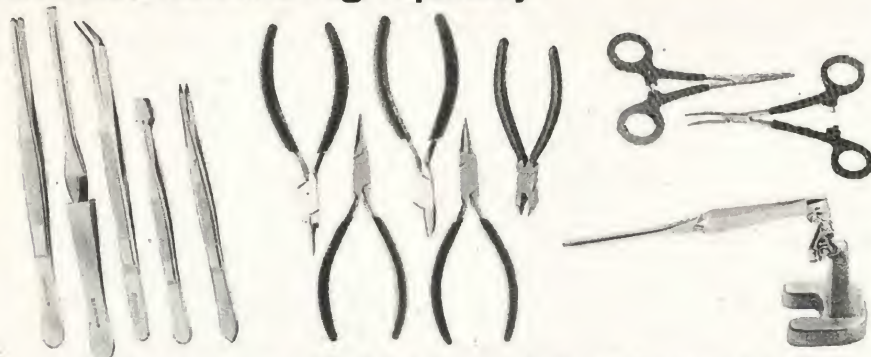
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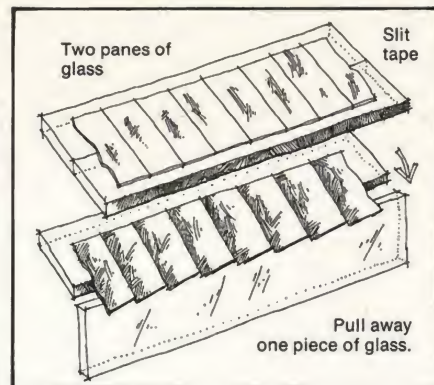
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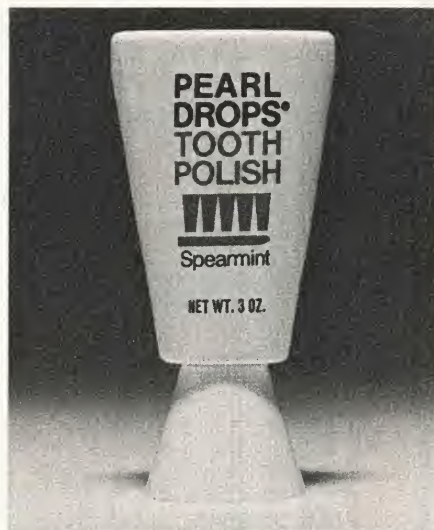
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length of tape over the seam. Slit the tape into small pieces, cutting across the seam. Then, peel away one piece of glass, exposing one edge of the tape for easy handling.

Ed Kolbush



Glue applicator. Pearl Drops tooth polish bottles are ideal dispensers for white glue. They're small, easy to handle, and the caps allow them to be placed upside down, so there's no waiting for the glue to run down.

Bob Raw



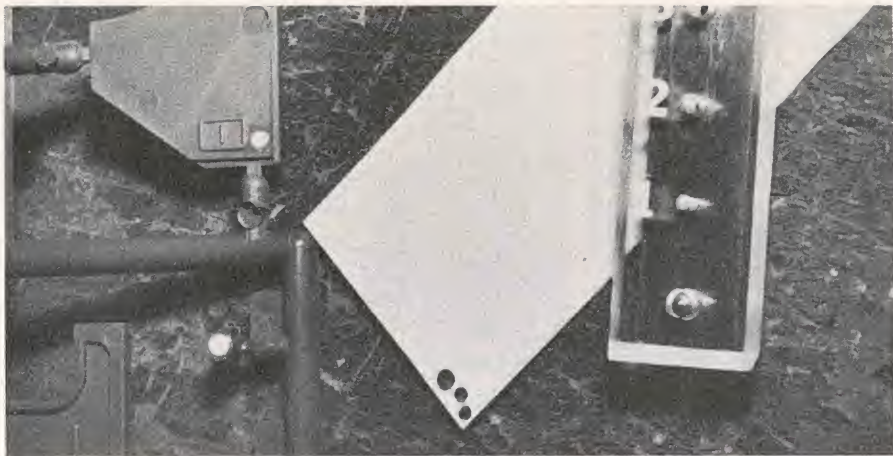
Decal blotter. A sponge-tip makeup applicator from the cosmetic counter of your favorite department store is perfect for blotting water and setting solution from decals. It has a short plastic handle with a round, fine-textured sponge on the end. Unlike pa-

per towels, the makeup sponge will soak up many times its weight just by pressing straight down on the decal. Decals won't stick to the sponge, and by pressing vertically, distortion and cracking are avoided. They are especially helpful when decaling corrugated or concave surfaces.

T. E. Bell

Filling mold marks. Ejector pin mold marks are difficult to fill, but here's an easy way if you have Waldron's Punch set. I use it to cut out small circles of thin sheet styrene. I then glue the discs into the ejector pin marks and after they're dry, I sand them flush. Another way is to cut wafers from the proper size sprue (or stretched sprue for smaller-sized circles).

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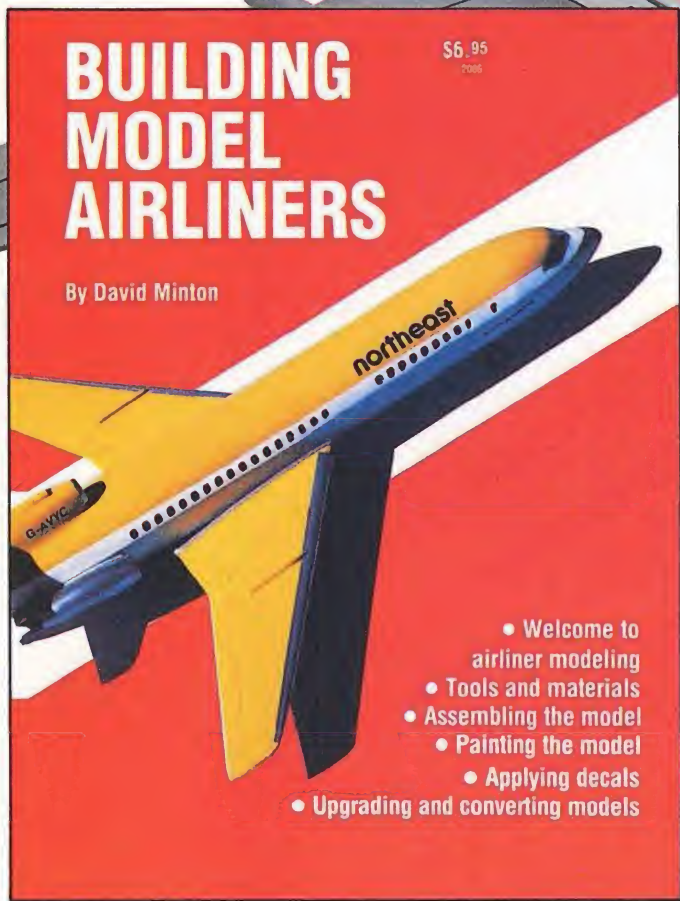
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